

# THE IRON AGE

THE NATIONAL METALWORKING WEEKLY

March 23, 1950



UNIV. OF MICHIGAN

MAR 23 1950

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MORE FEET  
PER POUND

## And the right step to lowered costs

Whether you buy cold rolled strip steel in pound or carload lots, if your fabricated product is then sold by the foot or piece you are entitled to expect maximum yield per ton. CMP is well known for consistently delivering the close gauge tolerance and other precision characteristics that assure more feet per pound — more finished parts per ton; in light gauge low carbon, spring steel, stainless and alloy grades. CMP Thinsteel is the specialty product of a highly specialized organization. We welcome comparison with any other product within our range of regular manufacturing limits.

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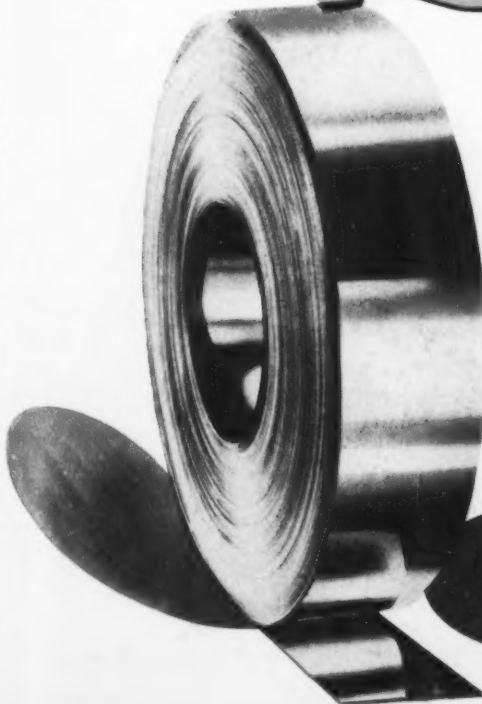
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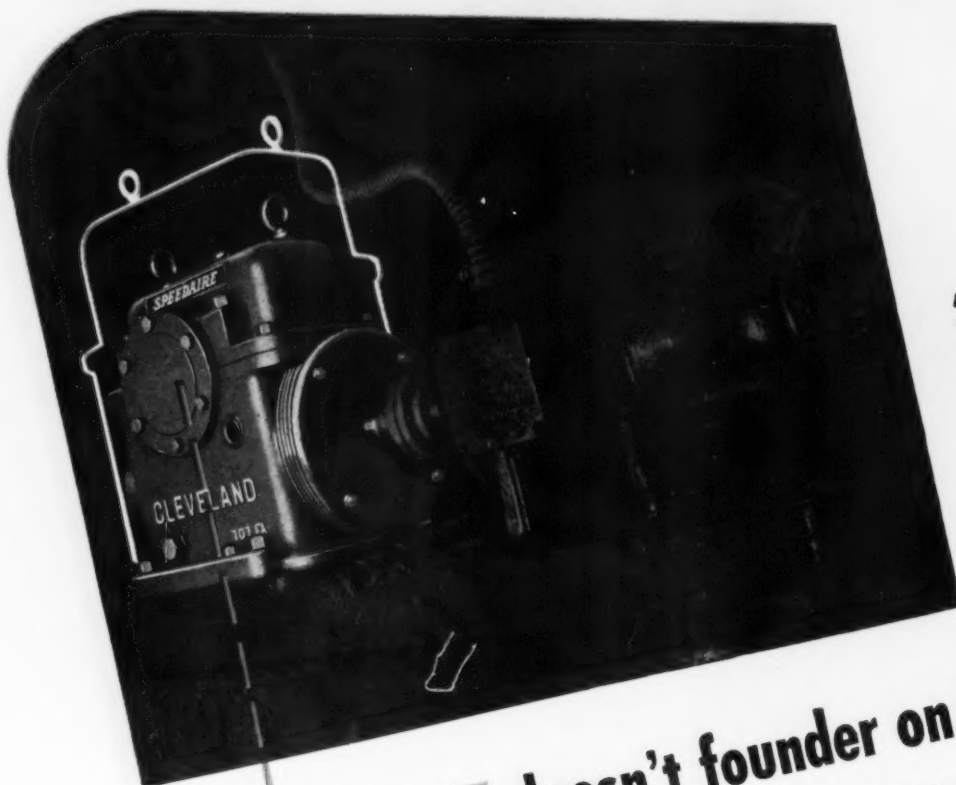
### GAUGES AS THIN AS .001"

..... strength with lightness



**Cold Metal Products co.**  
YOUNGSTOWN 1, OHIO

NEW YORK • CHICAGO • DETROIT • ST. LOUIS • INDIANAPOLIS • LOS ANGELES



As the white outline indicates, a standard unit of much greater frame size would be required to do the work of Speedaire.

Photograph by courtesy of the Packard Motor Car Company.

## **SPEEDAIRE** doesn't founder on foundry sand

FOR well over a year, this Speedaire unit has been running continually, driving a spiral conveyor in the Packard Production Foundry at Detroit. As the photograph reveals, operating conditions are quite severe, both motor and reducer being subjected constantly to sand and grit. Speedaire was selected for this service because of the three-way saving it offered, compared to the conventional worm gear speed reducer. Speedaire is  $23\frac{1}{2}\%$  lighter in weight, takes 38% less space and costs  $12\frac{1}{2}\%$  less money than the standard unit required to do the job.

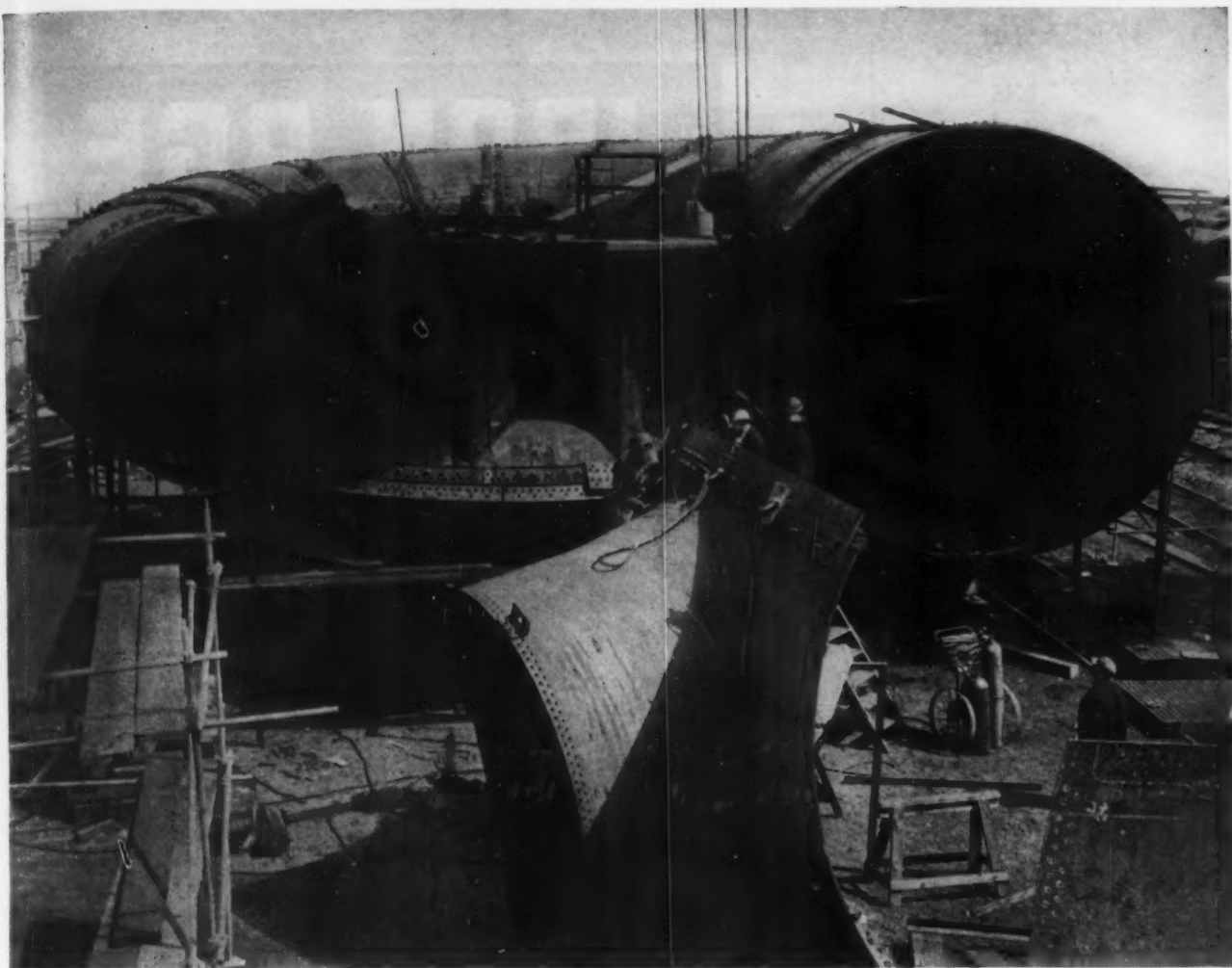
Speedaire is Cleveland's fan-cooled worm-gear speed reducer. Because it is fan-cooled, Speedaire will do more work—will deliver up to *double the horsepower* of standard worm units of equal frame size, at usual motor speeds. It can be installed economically on many applications where other types have been used heretofore—giving you the advantage of a compact right-angle drive. Speedaire gives the same long, trouble-free service characteristic of all Clevelands.

For full description, send for Catalog 300. The Cleveland Worm & Gear Co., 3252 East 80th St., Cleveland 4, O.

Affiliate: The Farval Corporation, Centralized Systems of Lubrication. In Canada: Peacock Brothers, Limited.



**CLEVELAND**  
Worm Gear  
*Speed Reducers*



# 200-Ton Turbine Casing formed from steel plates

This steel shell is a scroll casing for the U. S. Bureau of Reclamation's new hydroelectric plant at Davis Dam on the Colorado River, where it will enclose one of the plant's five huge turbines. Through the 22-ft intake of the casing will pour the impounded waters of the Colorado, to turn the turbine shaft.

The casing consists of steel plates, varying in thickness from  $\frac{5}{8}$  in. to 1 in., formed to shape and riveted together. It weighs 200 tons, and measures approximately 65 ft across.

All five scroll casings for the plant at Davis Dam are being supplied by Bethlehem. This unusual job is representative of Bethlehem's ability to turn out steel-plate construction to meet any requirement. We are also supplying many types of steel-plate work for other fields, including such items as oil storage tanks, gas holders, pressure vessels, penstocks, large-diameter pipe, and tunnel linings.



BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation  
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## FABRICATED STEEL CONSTRUCTION

March 23, 1950







## Special Article



Profit sharing, one way to reinforce the capitalistic system, receives a thorough treatment in an IRON AGE Special Report appearing in this issue. Outdated studies say it is unstable, but the facts show that many companies and their employees are very well satisfied with their profit-sharing plans. Many of these plans have been in existence for years.—p. 59.

## Issue Highlights



Precise foundry control is required to produce dies and punches that will accurately reproduce air-flow contours. Analysis of the original metal and remelted material must be closely checked. The utmost precaution is necessary to prevent contamination and to hold shrinkage to a minimum.—p. 65.



Part II of an article covering Chevrolet's new torque converter transmission, the result of 4 years of study, three complete redesigns, and nearly 400,000 miles of road tests, is presented in this issue. The intricate fixtures necessary for the assembly of pressed metal converter components through welding and brazing are covered in detail.—p. 70.



Strategic supply lines from the Caribbean to the United States, essential to our supply of iron ore and bauxite, may be less secure against sudden attack when current plans of the military services go into effect. Naval and Air Force bases in the Caribbean are soon to be reduced in strength.—p. 79.



One of the big factors in the steel shortage in the Midwest is the appliance industry. This industry's impact on the market is out of proportion to its tonnage requirements because the type of steel it uses is the type in shortest supply—sheet. Most of the big firms have been in conversion right along. Now the smaller firms are coming in for tonnage, too.—p. 81.



Big production industries are being joined by relatively small consumers in bidding for conversion steel. These firms are not seeking heavy tonnages. Some of this business is for 500 ton lots, perhaps to help the consumer squeeze through a tight spot.—p. 85.

## Coming Next Week



An IRON AGE Special Issue devoted exclusively to the ASTE Cost-Cutting Exposition appears next week. Cost-cutting hints are presented in articles covering the following topics: Tool Control; Tool Material Standardization; Heat Treating Methods; Resistance Weld Procedures; Form Cutting Precision Gears, and Tool Manufacturing for Machine Shops and Die Shops. Also included are a Tool Engineers' Notebook of Cost Cutting Case Histories and the ASTE Convention Program.

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## How twin grommets reduce belt failures

*B.F. Goodrich grommet V belts last 20 to 50% longer*

**W**HEN an ordinary V belt enters the sheave, the center cords are forced down and away from the center where the load is carried. Belt men call this "dishing" because the cord section becomes concave like a dish. With the new B. F. Goodrich V belt there are no center cords, no "dishing." Here's how it works —

*All cords are put to work* — Twin grommets are placed close to the driving faces of the belt. All the time the belt is in the pulley, the grommets keep working close to the driving surfaces. The load is evenly distributed. In laboratory tests, grommet V belts actually

lasted 20 to 50% longer.

*Every part is flexible* — Because a grommet V belt has no stiff overlapping section, every part is equally flexible. Better grip, less slip. Grommet V belts give  $\frac{1}{3}$  more gripping power, pull heavier loads with a higher safety factor.

*Endless grommets reduce belt failures* — Most of the failures in ordinary belts occur where cords overlap. But in the B. F. Goodrich grommet V belt the cord section is *endless* — made by winding heavy cord on itself to form an endless loop. These are twin cord sections, *not ordinary cables*.

*No other V belt has it* — Twin

grommet construction is found only in B. F. Goodrich V belts. (U. S. Patent No. 2,233,294.) It's a premium construction feature that costs you no more. At present made in D and E sections only. Ask your local B. F. Goodrich distributor to show you his "X-ray" belt that clearly illustrates grommet construction. *The B. F. Goodrich Company, Industrial and General Products Division, Akron, Ohio.*

*Grommet V Belts* BY  
**B.F. Goodrich**

# Editorial

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INDUSTRY VIEWPOINTS

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## Horrrifying!

**T**HERE are two horrrifying things in Washington these days. One is the extremely hostile Senate-House Economic Committee investigation report on steel prices. This might be all right if an unbiased judicial body had made the study and there was no political flavor. But even then there would be a strong feeling that we are headed for socialization of steel unless the public is given the facts quickly.

The other horrrifying thing is to see that Senator Taft is quoted as saying—or at least implying—that maybe the government should consider placing a limit on the amount of business a steel company should get. Are we or are we not a free enterprise nation?

Senator Taft then says that the price of steel may be too high. But he says that higher labor and pension costs are going to reflect higher prices. This doesn't make sense.

But how to give the facts when steel is accused of everything in the book without regard to the truth?

Do we have competition in steel? Such a question is laughable to one who knows the steel industry. Sure there is competition in steel. There is competition in salesmen, grades, quality, advertising, geographical location and what have you.

So the price of steel is the same among most companies? Why wouldn't it be? No one in his right mind will buy steel from firms which charge a higher price than other firms. That is unless the demand is so heavy that he can't get it from the companies with lower prices.

So the price of popular cigarettes is the same regardless of brand. Is there competition among tobacco people? Ask them! Chewing gum is priced about the same everywhere. Is there competition? Ask them! Candy bars rate about the same dime or nickel. Is there competition? Ask them!

The rub is that steel is one place where those who want government control would like to start. Where a better place?

Where else could they gain such a control over the nation's economy? If the control-minded and government control advocates—they never travel under those names—keep at it long enough with the support of congressmen, they may get what they want.

Steel companies raised their prices to take care of increased costs forced on them by the government and by the unions. Can you be murdered, slandered and called a crook for doing that—yet?

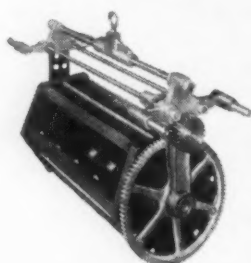
*Tom C. Campbell*

Editor

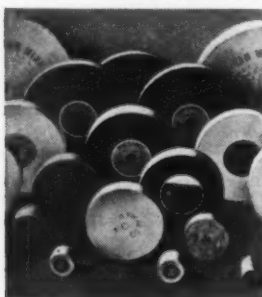




# Guessing Doesn't Pay



**You don't have to guess what qualities make one plating barrel better than another.** It must: withstand high acid and alkali solutions... endure continuous production... be unaffected by extreme temperature changes. If a plating barrel does these things, then you can load the cylinder and run it through the entire plating cycle. Result: no transfer of parts... high speed production... low handling costs. H-VW-M Mercil type plating barrels have all these qualities. Ask for Bulletin PB-107.



**Guessing is out when it comes to selecting polishing wheels.** Such factors as type and shape of work, and the finish desired must be considered. The wheel itself should be flexible, of uniform density and properly balanced. Be sure, too, that it is made of all new materials so necessary for maximum strength and wearing qualities as well as ability to hold the abrasive. All these factors are inherent in the full line of H-VW-M cloth, canvas, leather and felt polishing wheels. Ask for Bulletin W-102.



**Taking a chance on a cleaning solution may make plating a tougher job.** Only the right cleaner compounded to remove soil from a specific metal will give you the absolutely clean surfaces so essential to good plating. Important considerations, too, are pre-cleaning—cleaning and plating operations—metal surface conditions—type and quantity of packing, if any, in recesses—effect of stacking—base metal. H-VW-M is constantly studying these and other factors to provide you with the most complete line of cleaners, each designed to do a specific job, effectively and economically. Ask for Bulletin C-106.

**WHEN BUYING PLATING  
AND POLISHING EQUIPMENT  
& SUPPLIES**

Don't guess about plating and polishing equipment and supplies. Remember: you can always get what you want from H-VW-M when you want it... H-VW-M products are strategically warehoused for prompt service and delivery... H-VW-M sales-engineers and laboratory technicians are always available for help in your production problems. It is this overall service and experience that have made H-VW-M the central source of supply... for over 70 years... for all the needs of the electroplating and polishing industry.

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# NEWSFRONT

## NEWS, METHODS AND PRODUCT FORECAST

► With the opening of navigation on the Great Lakes, steel will be shipped all the way from Europe to Cleveland docks for less than \$15.00 per net ton. This is only about \$4.00 more than the rail rate from Pittsburgh to Detroit.

Meanwhile, European steel producers have not only undercut U. S. mills on deliveries in East Coast cities but they are smarter than they were before the war. Now they will invoice in American weights, thread with our pipe threads, offer ASTM standards on analysis and on deformed reinforcing bars.

► An electric furnace as large as some openhearths will be in operation late this year, according to the present schedule. The furnace is 54 ft long, 24 ft 9 in. wide and 10 ft high. It has 28 charging doors. No further details can be revealed now.

► A new flexible drive coupling able to handle up to 300 hp at 9000 rpm is being tested by the Air Materiel Command. This means that a remotely mounted engine driven gear box can be used to furnish power for a number of accessories while using only one engine accessory drive pad.

► The supply of ferrocolumbium, as we now know it, is drying up. Much of this ferroalloy now contains 5 pct tantalum. Eventually it will contain about 20 pct Ta, 40 pct Cb, with the balance Fe plus some other impurities.

► Ford Motor Co. now has 91.3 pct of its production departments operating under statistical quality control. Ford had found that as many as 15 pct defective parts may slip by the inspectors. Under statistical quality control this 15 pct is often cut to less than 1 pct.

► Higher jet engine operating temperatures are now possible through the use of a new cooling technique. A cooling liquid is forced through a porous powder metal part in the opposite direction to that of the heat flow.

► Instead of directly burning high-btu propane as a standby fuel, a new process preheats propane and air to over 1000°F in a heat exchanger and then lets the two react together for a few hundredths of a sec. Heat from the partial combustion of some of the propane converts the remainder into smaller gas molecules. This is cooled in the heat exchanger and piped to the mains. Overall thermal efficiency of the process is reported to be better than 98 pct.

► Of all the high temperature materials tested so far, cemented zirconium boride has proven more resistant to attack than any other composition.

► Republic Steel's two new ore carriers for Liberian service are rated at 25,000-tons deadweight. They will be in service by late 1951 and are standard diesel powered ocean going ships. They will haul general cargo eastbound and carry ore coming back.

► Smaller consumers have joined the larger companies in the steel conversion parade. Tonnages for the new members of this fraternity are low, generally around 500 tons per order. Supply of semi-finished steel, particularly slabs, is very tight due to conversion programs.



*This Tubular Pitcher*

**makes a hit**

Powered by compressed air, this new invention will throw a baseball faster and more accurately than any human can. It can be adjusted to pitch 8 different curves, and will groove the plate every time, at the exact height desired. Eagerly adopted by major league ball clubs, this mechanical pitcher even takes on batting chores—when set up over home plate, it will lay down a 400 foot fungo in any direction.

The barrel, curve adapter and air chamber of this "iron man" are seamless steel tubes. The barrel bore is required to fit a baseball without seizing, yet tightly enough to prevent loss of compressed air power while firing. Despite this unusual specification, tubing of the required size is regularly supplied—right out of Frasse warehouse stock.

You're invited to be choosy when you work with Frasse tubing stocks. Sizes in mechanical tubing range from a convenient  $\frac{3}{32}$ " to  $10\frac{1}{2}$ " O.D.—and unusually complete inventories are equally handy in stainless tubing, aircraft tubes and condenser and pressure tubes. What are your requirements? Peter A. FRASSE and Co., Inc., 17 Grand Street, New York 13, N. Y. (Walker 5-2200) • 3911 Wissahickon Avenue, Philadelphia 29, Pa. (Baldwin 9-9900) • 50 Exchange Street, Buffalo 3, N. Y. (Washington 2000) • Jersey City • Syracuse • Hartford • Rochester • Baltimore

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Seamless and Welded Mechanical  
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Tubing to Aircraft Specification



**Steel Pressure Holding High**

**Ingot Rate Zooms To 95 Pct**

**Scrap Composite Advances 50¢** **IRON AND STEEL INDUSTRY TRENDS**

## **The Iron Age**

# **SUMMARY**

**T**HIS week steel demand is as strong as it has been for many months. Although it was harder to obtain steel during the strike last October or during the coal crisis last month, the pressure from steel users was no greater than it is now. This pressure will probably ease off during the second half of the year—it has to ease off eventually. But right now it is terrific!

During the steel strike last October, steel people knew that some of the orders on their books were a hedge against the strike. They expected some cancellations after the strike ended. But the cancellations never came.

Again during the coal crisis last month they believed that some orders were a hedge against an interruption of production. Right now the outlook is for a high rate of uninterrupted steel production. And cancellations are practically nonexistent. There is little chance of cancellations in tight steel products until the industry has made up production lost during the coal strike—probably early in May.

### **Steelmakers Wary of Market**

The steelmakers are still wary of the market. To them, it is too good to be true. Bitter experience has taught them that when retail stores are well stocked with goods, warehouses full, supply lines clogged and consumer buying slows just a little, steel orders can drop clear out of sight. When that happens full order books provide little solace, because orders are cancelled.

But the people who are putting the pressure on the steel market insist that there is nothing phoney about it. Foremost among these people are the auto makers, appliance manufacturers, and farm implement builders. They have enough steel to keep their operations at capacity. But they are still scurrying about, making certain they don't run out.

This week there is more conversion activity than there has been since the early part of 1949. And it is increasing. A careful check by IRON AGE EDITORS in widely separated points shows that conversion has been on the upgrade for the past several weeks. This is due mainly to medium-size and small firms coming in for ton-

nage. Until recently most conversion was by big firms.

Auto makers have not made conversion arrangements past June, although one tried to do so and was turned down by the mill. Some of the conversion scheduled for June is being carried over into July because of short deliveries. Conversion by auto makers will undoubtedly fade after June. It may disappear completely within the following 60 days.

### **Appliance People Optimistic, Too**

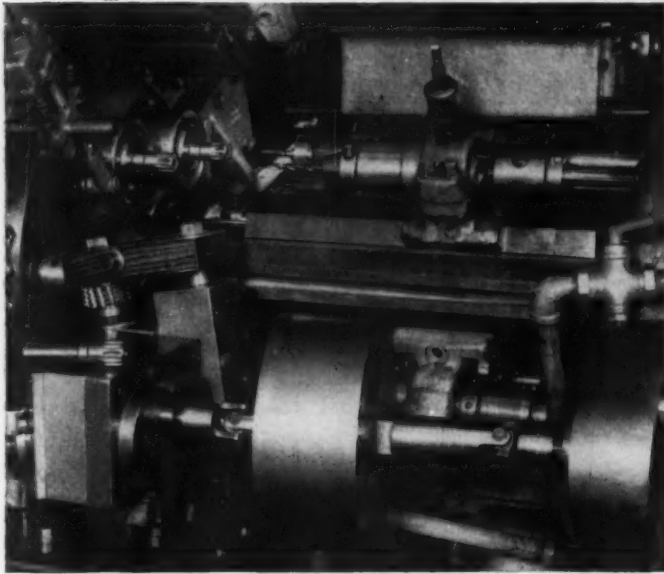
The auto outlook is clouded by two factors: The continuing Chrysler strike and the May 29 contract deadline of General Motors. There are some reports that Chrysler has been turning down some steel. This is true, but the tonnage so far is small, and there are plenty of eager takers. This is not surprising, since Chrysler and its suppliers have been storing steel for 50 days.

The appliance makers are just as optimistic as the auto people. Their plants have been running at or near capacity since last summer's too severe cutback. The appliance industry's impact on the steel market is out of proportion to its tonnage requirements because the type of steel it needs is the type in shortest supply—sheets. Appliance makers are helping keep warehouses cleaned out and snapping up occasional surplus stocks from less active industrial plants. They report that dealers' stock of appliances are below normal for this season and that factory stocks are practically zero.

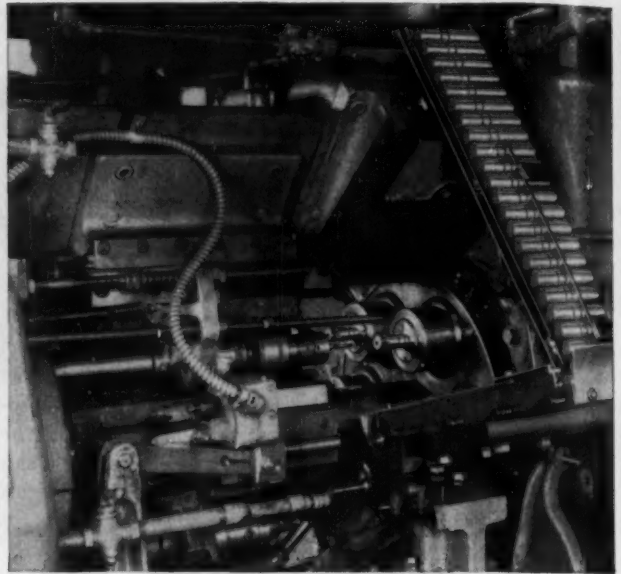
### **Ingot Rate Soars to 95 Pct**

Steelmaking operations this week are scheduled at 95 pct of rated capacity, up 5 points from last week. The IRON AGE steel scrap composite price kept pace, advancing 50¢ a ton to \$28.42 per gross ton. This was caused by an increase of \$1.50 a ton at Philadelphia. The reference on this page last week to stronger demand for alloy steel was to electric furnace alloys, not to open-hearth alloy steel. Order books for the latter type are relatively light and space is now open at most mills for 3 to 6-week delivery.

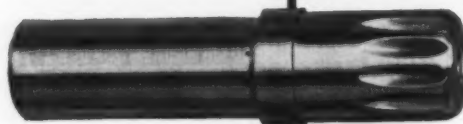
# HOW TO SAVE ON SECOND OPERATION JOBS



Front tooling zone, Acme-Gridley bar automatic with special hobbing attachment for machining ratchet shafts.



Rear tooling zone, Acme-Gridley bar automatic with special magazine loader used in machining ratchet shafts.



## JOB FACTS

**Part**—Ratchet Shaft  $1\frac{1}{16}$ " diameter x  $3\frac{7}{8}$ " long  
**Material**—SAE 1112  
**Operations**—6, including hob 12 serrations  
**Machine**—Acme-Gridley  $1\frac{1}{4}$ " RA-6 spindle bar automatic with magazine loading  
**Machining Time**—10.7 seconds per piece

Second operations can sop up a lot of production dollars—unless you handle them right.

The *right* way—the timesaving, money-saving way, is to put them on an Acme-Gridley. Its greater versatility permits the liberal use of independent, power-driven auxiliaries—that combine operations, reduce handling, and cut machine overhead.

Take the ratchet shaft job illustrated, for example. Instead of transferring the part to a hobbing machine after the second operation drilling and tapping has been performed,

the twelve serrations are machined by a hobbing attachment. Result: one less machine, one less unloading and reloading operation. And magazine loading cuts man-hours and production time still farther.

Wide, open tooling zones, close-coupled camming, rigid construction and plenty of power pay off in more good pieces in the pan every time. These are the practical, dollar-saving kinds of results you can expect from every Acme-Gridley. May we give you more facts, stated specifically in terms of your own needs? No obligation, of course.

# The NATIONAL ACME CO.

170 EAST 131st STREET • CLEVELAND 8, OHIO

Acme-Gridley 4-6 and 8 Spindle Bar and Chucking Automatics • Single Spindle Automatics • Thread Rolling Machines • Automatic Threading Dies and Taps • The Chronolog • Limit, Motor Starter and Control Station Switches • Counters • Solenoids • Centrifuges • Contract Manufacturing

# Johnston Corrugated Cinder Pot Performance Key to Slag Handling Economy



View showing Johnston Corrugated Cinder Pots at slag dump, Weirton District



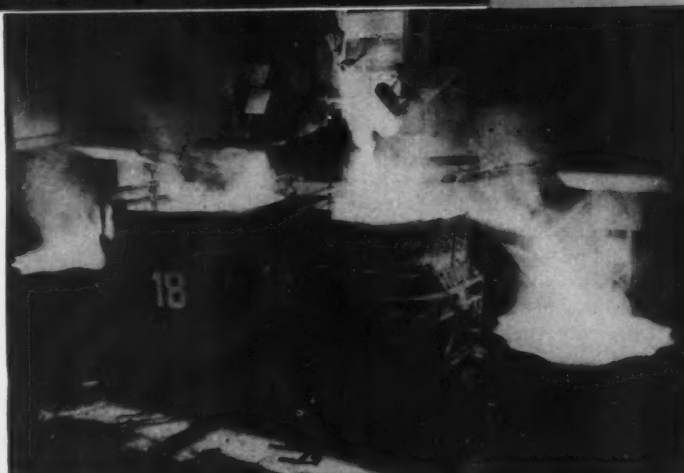
Close-up of Johnston Corrugated Cinder Pot

## Continuous Developments Increase Service Life of Johnston Corrugated Cinder Pots

Slag Handling is expensive business—part of the cost of every ton of steel. But when you apply Johnston Corrugated Cinder Pots and Slag Handling Equipment you'll find their performance an important factor in keeping slag disposal at the lowest cost-per-ton of steel produced.

Every Johnston Corrugated Cinder Pot is engineered for its specific job. That's why they establish records for heat-hours of service life—why they are so economical for use in blast furnace or open hearth slag disposal operations.

Then, too, you'll find that our engineers are constantly developing and improving methods and equipment for more efficient slag handling. This continuing research is reflected in reduced slag disposal costs when you adopt Johnston Corrugated Cinder Pots and Slag Handling Equipment.



Tapping a 480 ton open hearth heat in two 250 ton ladles, the slag being handled by two 400 cubic foot Johnston Corrugated Cinder Pots

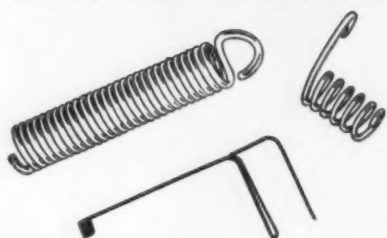
Don't forget that it pays to *keep your eye on what's new at Mack-Hemp*. Just write or phone and we'll show you how we can expedite your slag handling by installing this modern equipment.

**MACKINTOSH-HEMPHILL CO.**  
PITTSBURGH AND MIDLAND, PA.



*"Springs  
are Springs"*

maybe so  
for most people  
... but NOT  
for ACCURATE



HOW often have you heard a spring user or even a manufacturer say "Springs are springs, what difference who makes them if the price is right?" Here at Accurate, we think it makes a big difference and our experience proves it. *Exact* conformance to specifications can be mighty important if it means easier, faster assembly and better performance for your product. Quality control is important, too, when it saves you time and trouble. "Know-how" and facilities for making springs the least costly way can mean many dollars for you.

It all adds up to lower overall spring costs for you and that's what we at Accurate have to sell. Before you place your next spring order we would like to show you what it means to you in particular. There's no obligation; write today.



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## Fatigue Cracks

By *Charles T. Post*

### Steel Is A Lady

Bob Reinhardt, your f.f.j.'s West Coast chronicler, confesses that this story of a postman's confusion between the 1,300,000-ton Geneva steel plant and a bit of feminine fluff is not news out West, but in this day of exposés, we think the rest of the country should know. As Bob tells it:

"For many years, life flowed in a normal pattern for a young lady living at Orem, Utah. Least of this young lady's worries was mail delivery—that is, until about 7 years ago when the federal government built a steel plant at Geneva, Utah. With the start of construction there, life became much more complicated for Mrs. Geneva Steele.

"Instead of receiving the normal household flow of mail—electric light bills, water bills, mail order ads and letters from friends, Mrs. Steele found her mail box filled with contracts, blue prints, orders for tons of steel plates, five-figure tax bills and numerous other communications common to the operation of a large steel plant. On the other hand, officials of Geneva Steel Co. were amazed somewhat to find themselves frequently in possession of Mrs. Steele's personal correspondence. This was always forwarded to the proper recipient, of course, often with the notation 'opened by mistake but not read.'

"As the net result, there was a lively traffic between Mrs. Steele's home and the huge steel plant, 5 miles away, to effect the necessary exchange of mail. Finally Mrs. Steele reached the yield point. She had all her business and social correspondence addressed to her in the name of her husband. Now

postal clerks breathe easier, for they can readily separate mail destined for Mrs. Robert Steele from that directed to Geneva Steel Co."

### Puzzler

Last week Readers Bowerman, Chandler and Johnson turned us loose with a simple balance and 12 coins, 11 of which were of equal weight but one of which was either overweight or underweight. They all swore the odd coin could be separated and positively identified as being light or heavy in three weighings, but didn't tell us how to do it. And that, boss, is the research problem that's been taking all our time for the past week.

Finally, we telephoned Henry Chandler this morning, and he told us this much: "Weigh any two sets of four coins. If they balance, you know the odd coin is in the four not weighed. Weigh three of these against three positively identified as sound. (If they balance, the dud is the remaining coin, and one more weighing against a good coin will show whether it is light or heavy.) But if they don't balance, you have at least determined whether the bad coin is light or heavy. Then weigh any two of the three against each other and you have the bad coin."

"But," we said, "what if the original sets of four coins don't balance, thus indicating that one of them contains the bad coin, which still may be either light or heavy?"

"That," he replied, "is too complex to explain over the telephone, but I'll write you a letter explaining it."

Here's hoping the letter arrives by next week.

# Grid Porosity Reduced 85%

## IN NEW GOULD "Z" PLATE BATTERIES!



Cutaway view of "Z" Plate construction used in the  
Gould "Thirty" Battery

The No. 1 battery problem—positive grid failure due to porosity—has been solved by Gould's modern research laboratory and pilot plant! The new Gould "Z" Plate Battery has the only grid that is solid all the way through. Accelerated laboratory corrosion tests prove beyond question that Gould's new casting technique of progressive solidification can reduce porosity 85% to 90%!

That's why the new Gould "Z" Plate Batteries stay new longer . . . give more months of full capacity service. Only Gould offers you so much for your battery dollar, because only Gould has the new "Z" Plate!

Save money by replacing your old batteries now with new Gould "Z" Plate Batteries. Let us submit a quotation. And write us for literature on the new "Z" Plate Battery, greatest battery advance in years!



The Gould "Thirty"—  
More than ever,  
America's Finest Industrial  
Truck Battery

# GOULD

STORAGE BATTERY  
CORPORATION

TRENTON 7, NEW JERSEY

Always Use Gould Automobile and Truck Batteries

# Rodine

means

IMPROVED PERFORMANCE

for

MURIATIC AND SULFURIC ACID

## PICKLING BATHS

A little "RODINE" added to the pickling bath —

- SAVES GOOD METAL
- PROLONGS THE LIFE OF THE ACID BATH
- MINIMIZES HYDROGEN EMBRITTLEMENT
- PREVENTS OVER-PICKLING
- EXPEDITES SCALE REMOVAL
- ASSURES CLEANER, BETTER SURFACES
- REDUCES ACID FUMES
- IMPROVES WORKING CONDITIONS

# Rodine

is the standard inhibitor — used all over the world — by foremost industries. It has pioneered the way for quality production, control and economy.

There's a type of "RODINE" especially created for the job you have on hand.

We will be glad to send you complete technical information about your pickling production.

American Chemical Paint Co.  
AMBLER, PA.

# Dear Editor

## FAR EAST INQUIRY

As we have started a big steel works in southeast Asia, we propose to work in stages. In the commencement we are installing rolling mills to re-roll from scrap materials available in these places. Next, we propose to melt the available scrap and imported pig iron to manufacture billets. In the third stage we intend to work at production of pig iron. America being the world's best production center, we desire to get in touch with consulting engineers and machinery manufacturers who can give us advice and proper technical assistance in the whole matter.

MALAYA STEEL ROLLING MILLS  
Singapore, Malaya

Readers wishing to contact this company should write to Malaya Steel Rolling Mills, 73 Owen Rd., P. O. Box 1366, Singapore.

—Ed.

## NET vs GROSS TON

For several years the Purchases and Stores Section of the American Assn. of Railroads has been advocating the sale of scrap on a net ton basis. It is the consensus of opinion by far of the major portion of those having to do with the sale of scrap in the railroad industry, that the net ton as a unit is more desirable for obvious reasons. Am wondering if there are any reasons why quotations appearing in your paper could not be stated on a net ton basis, which would afford easier computations and comparisons than on a gross ton basis? Practically all commodities, even new rail these days, are purchased on a net ton basis. Personally, I can see no good reason why new materials that are purchased on a net ton basis should be disposed of as scrap on a gross ton basis. Conversion from one basis to the other entails additional work and causes confusion.

E. H. HUGHES  
Purchasing Agent

Kansas City Southern Railway Co.,  
Louisiana & Arkansas Railway Co.,  
Kansas City, Mo.

Just as soon as buyers and sellers can agree on this change, THE IRON AGE will begin quoting scrap prices on a net ton basis.—Ed.

## ENGLISH INCENTIVE

In England at present the public recently decided what government they want. The article "Poverty for All," in *Machine Tool Review* [by J. S. Lawrence, reprinted from THE IRON AGE] really surprises me—a £9-0-0 (\$25) a week engineering draftsman, working, incidentally, on oil field

equipment mostly of American design. I have a respect for my American counterpart, having to deal with drawings made in the U. S. A. I wish you to know that my incentive is not destroyed. I find the possibility of earning £20 (\$56) a week incentive enough knowing I can feed, clothe and educate my immediate circle at home even now. I do not need \$20,000 a year; nobody does in England. The words in your article that state "Should be a warning to the American public and to Congress" could read—"Should be a warning to Congress and an example to the American public."

STANLEY CROSS

Cheshire, England

## PRIZE WINNERS

Pheoll Mfg. Co. has been awarded third place in a contest conducted by the Industrial Editors' Assn. of Chicago. This award is in recognition of exceptional accomplishment in presenting a feature article of outstanding excellence and effectiveness. We were aided in writing this article by your staff's research work, checking back through old indexes of THE IRON AGE searching for material. I want to thank you for your cooperation and I sincerely hope that you will accept a share of our appreciation of this award.

R. J. NEWTON  
Personnel Dept.

Pheoll Mfg. Co.  
Chicago

Congratulations. If we can be of any help in going after first place in next year's contest, feel free to call on us. Our complete facilities are always at our readers' disposal.—Ed.

## WELDING STAINLESS

We have a problem in regard to welding and polishing stainless steel. We would appreciate it very much if you could tell us where we could locate a film giving instructions on stainless steel welding and polishing.

W. E. GUNNERSON  
Sales Manager

Anderson Bros. Mfg. Co.  
Rockford, Ill.

Allegheny Ludlum Steel Corp., Brackenridge, Pa., has produced a movie on the welding of stainless steel. Write to Mr. C. W. Green of that firm. Allegheny Ludlum also has issued booklets concerning the use of stainless in specific types of industries which are helpful. Quite possibly U. S. Steel Corp. also has movies which might be useful. Write to Mr. W. E. McLaine, U. S. Steel Corp., Investment Bldg., Pittsburgh, Pa., concerning this.—Ed.

## GALVANIZING

We would be interested to receive a reprint of the article "Galvanizing and Development Program" by A. H. Ward, which appeared in the Oct. 23, 1949 issue.

E. W. MULCAHY  
Chemical Engineering Dept.  
John Thompson (Dudley) Ltd.  
Wolverhampton, England

Copy has been sent.—Ed.



# INCREASES PRODUCTION...TRIPLES DIE LIFE

## REDUCES VIBRATION AND BED DEFLECTION

## PERMITTING LONG RUNS AT HIGHER SPEED

**T**HIS AUTOMOTIVE stamping was formerly produced on a press of the same tonnage at 20 strokes per minute. Now, on a Danly Heavy Duty *Autofeed* press, the speed has been tripled to 60 strokes per minute. In addition to increasing production, three times as many parts are produced between die grinds, and burring has been substantially reduced. Quality has been improved while reducing direct production costs.

All Heavy Duty *Autofeed* presses are designed throughout for faster, automatic stamping of parts. The entire frame is constructed heavier for the rated capacity of the press, reducing vibration at higher operating speeds. The result is longer uninterrupted runs, better die performance and higher product quality.

### EXCLUSIVE DANLY FEATURES POINT TO LOWER STAMPING COSTS

**Die Tryouts Facilitated**—Special Danly controls and unusual clutch sensitivity inherent in Danly design permit closer, more accurate "inching" during die tryouts. This saves time and adds safety in getting dies spotted and in production.

### WRITE FOR COMPLETE INFORMATION

Consult Danly Engineers for the most efficient presses to meet any requirement from 50 tons up. Danly Straight-Side, Single Action, Double Action and Gap Frame Presses are also setting production records throughout industry today.

Write now for catalog on Danly presses which can lead to real cost savings in your press shop.

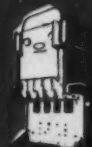
**Production Increased**—Heavier frame construction permits taking full advantage of automatic feed through progressive dies completing numerous operations in one press. Handling is reduced—one press does the work of several presses.

**Maintenance Costs Reduced**—The Danly air-cooled, air-operated clutch and brake operate for prolonged periods without maintenance. Friction discs responsible for clutching and braking action are not subjected to the disintegrating effects of high temperatures.

Automatic lubrication flushes all bearings in crown and slide, including gibs, substantially increasing the prime life and top performance of the press.



Inspection operation showing both clutch plates and lamp mounting brackets in place on gages. These parts are alternately produced on the Danly *Autofeed* Press.



AND PRESS EQUIPMENT

OVER 25 YEARS OF DEPENDABLE  
SERVICE TO THE STAMPING INDUSTRY

**AIRCRAFT  
QUALITY  
Alloy Steels**

AVAILABLE FOR  
IMMEDIATE SHIPMENT  
FROM OUR CHICAGO  
WAREHOUSE.

**SPECIFICATIONS**

AMS 6260  
AMS 6270  
AMS 6272  
AMS 6280  
AN-S-14A  
AMS 6324  
AMS 6415  
AN-QQ-756A  
AMS 6320 (Hex)

**ROUNDS—HEXAGONS**

COLD DRAWN  
HOT ROLLED

WE SEND A CERTIFIED  
ANALYSIS WITH EVERY  
AIRCRAFT SHIPMENT,  
AND THE RESULTS  
OF JOMINY HARDEN-  
ABILITY TESTS WHERE  
NECESSARY.

OUR COMPLETE  
STOCK LIST OF  
AIRCRAFT, ALLOY  
& 1045 HR SENT  
UPON REQUEST.

**HY-ALLOY STEELS CO.**  
30 N. LASALLE  
CHICAGO 2, ILL.  
RAN. 6-5253



**Dear Customer**

*Jack R. Hight*

**NEXT WEEK**—The Mar. 30 issue of THE IRON AGE will be the special Tool Engineer's Issue, packed with production tooling articles of extraordinary interest. It will all be pointing up the meeting of the American Society of Tool Engineers in Philadelphia, to be held from Apr. 10 through Apr. 14. In addition to printing a special issue next week, and providing extra coverage of the trade show during April, much of the staff of THE IRON AGE will be in and about booth no. 210 during the week of the show. Drop in to shake our hand or point an accusing finger at us while you're there.

**PROFIT SHARING**—On page 59 of this issue is a Special Report that touches on one of the most perplexing problems facing industry today. Every top management executive is thinking about the production that he is getting from his current labor force. Many are trying hard to improve the productivity of labor. Many types of incentive plans have been tried to achieve this end.

Profit sharing plans have their friends and their enemies. In some plants they have been barred by unions. In others they have been set up, only to be dismal failures. But in still a third group of companies, they have been brilliantly successful. Walter Patton, Detroit Regional Editor, has gathered a mass of worthwhile facts on some plans that have worked, and some that have not.

**IN ST. LOUIS**—Advertising men in the St. Louis area, we find, are showing a rather remarkable optimism. Some of them are just now getting their 1950 budgets approved, and have been slightly piqued at this fact, but many of them are very happy with the result of budget conferences.

Metalworking plants in the area are beginning to feel more sure of themselves, after some rough months in 1949. Customers who were very cautious during the late months of last year are coming back into the market. Needless to say, they are being welcomed with open arms.

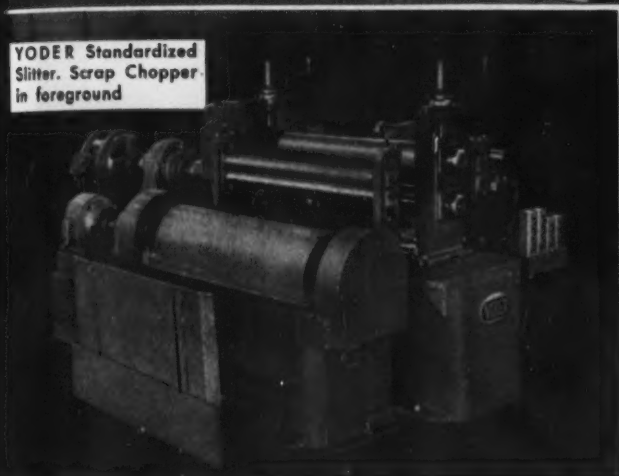
**CITY CLUB**—Tom Campbell, editor of THE IRON AGE, joined a group of greats and near greats when he spoke before the lively City Club of Cleveland Mar. 11. This group of community leaders is famous for their sessions with outside speakers. Ye editor spoke on the geography and economics of the U. S. iron ore situation.

If nothing else, it was a graphic demonstration that the age of personal journalism is not over. We need not tell our faithful readers that when THE IRON AGE speaks of the ore situation, it speaks from personal experience. When a subject of such fundamental interest comes up, THE IRON AGE covers the ground in person to get the news that cannot be obtained accurately by any substitute method.

Production of 40 tons per day  
on slit strands is not unusual



YODER Standardized  
Slitter. Scrap Chopper.  
in foreground



*Works only One Day a Week*

... **... YET EARNS A GOOD LIVING!**

ANY WORKMAN who could do that—well, maybe there never was such a man, but there certainly is such a machine—the Yoder Rotary Gang Slitter for coils and sheets.

Figure it out for yourself and you will see how it may easily "earn its keep" and pay for itself in jig time, on less than 20% operation. With an experienced crew of two or three, a daily production from 20 to 140 tons is possible. With just a medium size Yoder slitting line and average size coils, forty tons per day is not at all unusual.

At the prevailing rate of one-half cent per pound for slitting service, not counting size extras, this would

mean yearly earnings of about \$20,800.00 working only one day per week.

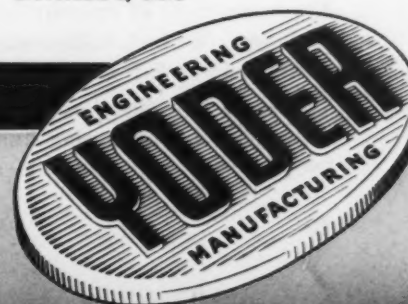
Yoder standardized series of slitting line units (uncoilers, slitters, scrap choppers, recoilers) offer the greatest values for your money—in capacity, output, convenience, accuracy, and stamina. If you use, handle or sell over 1000 tons of sheet and strip per year, a Yoder slitter may not only be highly profitable, but a great convenience besides. For special needs, slitting lines built to order.

*Consultations, Estimates and Recommendations. 76-page Slitter Book for the asking.*

**THE YODER COMPANY**  
5510 Walworth Ave. • Cleveland 2, Ohio

### Complete Production Lines

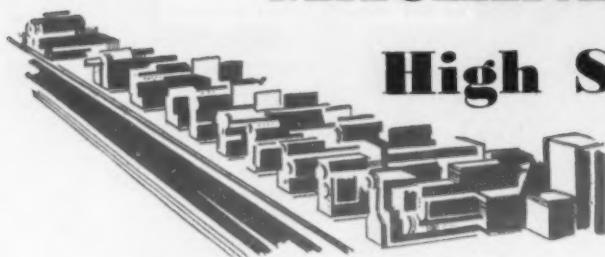
- ★ COLD-ROLL-FORMING and auxiliary machinery
- ★ GANG SLITTING LINES for Coils and Sheets
- ★ PIPE and TUBE MILLS—cold forming and welding





# MACHINE TOOL

## High Spots



Sales  
Inquiries  
and Production



by

*William A. Lloyd*

**Continued good business is forecast during second quarter . . . Detroit activity seen at high level.**

**Cleveland**—Based on the present volume of inquiries and quotations, the shape of things to come for the machine tool industry in the second quarter looks like continuing good business.

In addition, an increase in the volume of MAP orders is expected, and perhaps \$35 million in ECA business, which remains to be placed before the end of the fiscal year June 30, according to informed sources.

### **Detroit Reported Active**

In Detroit, the machine tool market continues to be highly active, with no indications of a slackening in the present level of demand. In addition to substantial buying by large automotive plants currently engaged in tooling for new engines and automatic transmissions, there has been some tool room buying by smaller firms. In this classification can be included die and engraving shops and other small establishments. The equipment of current interest includes boring mills, shapers, lathes and grinders.

Buying for the Ford six-cylinder engine is continuing and may be close to the wind-up stage.

Meanwhile, indications are that tooling for a new Ford V-8 high compression engine will follow closely behind the present program if it does not overlap to some extent. The Ford-Cincinnati transmission plant tooling is now close to the final stages, informed sources disclose, and there are indications that headquarters may be moved from Mound Road to Cincinnati within the next 30 to 60 days.

### **Chrysler Program Slowed**

The Chrysler program for its new V-8 engine has been effectively slowed down by the fact that many workers on the staff of the master mechanic are currently on strike. This program is expected to go forward promptly as soon as the Chrysler strike is settled.

A considerable amount of buying for General Motors Transmission Division is being delivered, a substantial part of which is destined for the new plant in Livonia Township, just west of Detroit on Plymouth Road. There is some speculation about a new transmission for Cadillac. Present indications are that this may turn out to be a single phase torque converter

type that locks out into mechanical gear. If true, this would be a distinct departure from the design currently being used by Buick and Chevrolet.

### **Backlogs Are Growing**

In Cleveland—Backlog of orders in major segments of the contract tool and die industry is higher than at any time last year, according to reliable sources. Business is unevenly distributed but the pickup in new orders has given rise to a restrained optimism. Sales invoiced in January by members of National Tool & Die Manufacturers' Assn. were 97 pct of the January, 1949 volume. Orders received in January were 7 pct above the December, 1949 volume. Employment has increased about 4 pct since September. Outlook for this industry for the next 3 months is considered good, or no worse than fair.

In New Britain, Conn., Herbert H. Pease, president, New Britain Machine Co., and a former president of National Machine Tool Builders' Assn., warned in his annual report to shareholders that if the present obsolescence trend in machinery continues in this country, "our world renowned ability to produce will become endangered."

"It is disturbing to note that the purchase of machine tools in this country in 1949 were only about \$177 million, somewhat below 1948 sales of \$226 million," Mr. Pease stated.

"The result of our (New Britain's) operations for the year 1949 shows some improvement over the preceding year, although we experienced a slight decline in volume of business," he pointed out.

"Overall purchases of machine tools in this country during 1949 were less than in 1948 and the reduction in volume in our machine tool division generally followed the national pattern.

Net earnings of New Britain Machine in 1949 were \$179,407 compared with \$45,516 in 1948.

→ "No more rancidity,  
→ No more wheel loading troubles



since we switched to

**Gulf Soluble Cutting Oil,"**

says this machine shop Foreman

"With each of the soluble oils we used previously, we had a serious problem in the operation of this grinder," says this machine shop Foreman. "The emulsion became rancid so quickly that we had to clean the circulating system and replace the entire charge frequently."

"Although the situation is aggravated by intermittent operation—the emulsion stands idle for long periods of time—we have been able to eliminate this problem entirely by simply switching to Gulf Soluble Cutting Oil. Then too, we have noticed that our grinding wheels cut cleaner with Gulf Soluble Cutting Oil—they don't load up nearly so fast."

Experiences like this with Gulf Soluble Cutting Oil make it the preferred cutting fluid in scores of machine

shops. Here are a few of the reasons why it does such an outstanding job: It emulsifies readily with all but the hardest water, forms a stable emulsion, and contains an effective rust inhibitor.

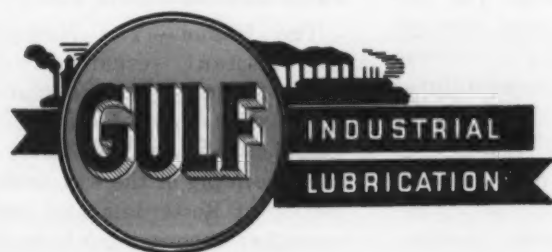
For further information on Gulf Soluble Cutting Oil—and for one of Gulf's practical slide-rule-type calculators which will help you maintain desirable soluble oil concentrations—send the coupon below.

**GULF OIL CORPORATION • GULF REFINING COMPANY**

GULF BUILDING, PITTSBURGH, PA.

Sales Offices - Warehouses

Located in principal cities and towns throughout Gulf's marketing territory



Gulf Oil Corporation • Gulf Refining Company  
3800 Gulf Building, Pittsburgh 30, Pa.

1A

Please send me, without obligation, the material I have indicated below:


- ☐ Further information on the new Gulf Soluble Cutting Oil.  
☐ Practical slide-rule-type calculator for help in maintaining desired soluble oil concentrations.

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Company.....

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# GLOBAL LETTER

## REVIEW OF WORLD MARKETS

**European coal situation improves . . . Coal imports from U. S. may fall to 2 million tons during 1950 . . . first gas turbine car developed in England operates on kerosene.**

Geneva — Improvement in Europe's coal supply situation has been rapid, according to John H. Brook, head of the overseas branch of the United Kingdom's Ministry of Fuel and Power and chairman of the United Nations Economic Commission.

Coal imports from other than European sources have declined faster than most experts thought they would a year ago, Mr. Brook stated, in a recent commission meeting here. The actual solid fuel loadings for Europe from the United States dropped from 3.5 million tons for the first quarter of 1949 to 205,000 for the fourth quarter. Although fourth quarter shipments may have been affected by coal strikes in the United States, European coal imports from the U. S. in 1950 are not expected to exceed 2 million tons in all, he continued.

### **Recovery Welcomed**

Mr. Brook said the welcomed and continued recovery of European coal production may perhaps cause the delegates of the commission to regard 1950 as the first year since the war that Europe can stand on its own feet and look back on the years of shortage with a feeling of relief.

### **Gas Turbine Car Developed**

London — The world's first gas turbine car was demonstrated on a track in Silverstone, Northhamptonshire, recently. Built by the Rover Co., the car attained a speed of 90 mph. Fuel consumption averages one gallon of kerosene every 12 miles, according to operating estimates. It may be possible to raise this to 20 miles per gallon once a new heat exchanger now being developed is perfected. Gasoline or diesel oil can be used as fuel also. Special high temperature alloys for the turbine blades are supplied by the firm of Henry Wiggin.

### **Full Production Long Way Off**

The power plant, which is mounted immediately ahead of the rear axle, consists of a centrifugal compressor, with dual combustion chambers, having a single stage compressor turbine and an independent power turbine. The latter is positively coupled through gearing, incorporating a reverse gear and drives a conventional rear axle.

At the Silverstone test the engine was started by means of the normal electric starter, which revolved the compressor turbine.

The turbine idles at 7000 rpm. There are only two pedals, accelerator and brake. Reverse gear is operated by a normal level. When the car is in operation it makes a soft, whirring sound.

The Rover Co. points out that the car is still in the experimental stage and full scale production is still a long way off.

### **Record Ore Shipments Cited**

Rio de Janeiro — Record shipments of iron and manganese ore were carried by the Central of Brazil Ry. from the Geraes mines and shipped through the port of Rio de Janeiro during 1949. These record shipments, surpassing even wartime shipments, totalled 546,453 tons of iron ore and manganese. The railroad has made special improvements to facilitate ore handling.

Total exports of metallic ores from Brazil during the first ten months of 1949 reached 701,675 tons, as compared with the corresponding period in 1948 of 672,490 tons.

### **Dutch Rebuild Zuider Zee**

The Hague — The Netherlands Government recently released about \$79,000 from its Marshall Plan counterpart fund for construction work on the Zuider Zee, the rebuilding of the war-damaged harbor at Rotterdam and numerous other recovery projects.



# FASTER GRINDING — FEWER WHEEL DRESSINGS — LOWER COSTS

## Economies gained by a New England plant\* using **TEXACO SOLUBLE OIL**

In this spindle grinding operation, an emulsion of *Texaco Soluble Oil D* is far out-performing the previously used high-priced competitive coolant. This is shown by a comparative run in which the same number of pieces was ground with each lubricant in turn.

Throughout the test, the wheel protected by the *Texaco Soluble Oil* emulsion required no dressing at all. Wheel size and corners were adequately maintained. With the competitive coolant, wear and corner breakdown sufficient to require wheel dressing occurred before half the run was completed.

In addition, *Texaco Soluble Oil* kept the wheel open, assuring faster cutting and better finish, and considerably reduced the total time for the run.

Examples like this of lower cost machining are the rule when *Texaco Cutting, Grinding and Soluble Oils* are on the job. A Texaco Lubrication Engineer will gladly help you gain these same benefits in your plant—whatever your metal working operations. Just call the nearest of the more than 2,000 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.



**Operation:** Grinding spindles to remove .020" stock  
**Metal:** 4150 steel, hardened to 40-45 Rockwell  
**Machine:** Cincinnati Filmatic, 10" cylindrical grinder  
**Emulsion:** Texaco Soluble Oil D at 58:1

*\*Name of this Texaco user on request*



## TEXACO CUTTING, GRINDING AND SOLUBLE OILS FOR FASTER MACHINING

TUNE IN . . . TEXACO presents MILTON BERLE on television every Tuesday night. METROPOLITAN OPERA radio broadcasts every Saturday afternoon.

March 23, 1950

33

# FREE

USE POST CARD

## PUBLICATIONS

### Die-Cut Stampings

Design and construction of tooling and equipment for producing die-cut stampings in limited quantities without prohibitive tooling cost is presented in a 14-p. booklet describing the Dayton Rogers Process. *Dayton Rogers Mfg. Co.* For more information, check No. 1 on the postcard.

### Conveyor Belting

Installation, care and maintenance of rubber conveyor belting is the subject of a new 10-p. booklet, which lists stock sizes of Carlyle conveyor belting. *Carlyle Rubber Co., Inc.* For more information, check No. 2 on the postcard.

### Knives and Shear Blades

The line of Cleveland solid and laid steel shear blades, rotary slitting and side trimming knives, spacing collars and cutting machine knives are shown on an illustrated sheet. *Cleveland Knife Div., Hill Acme Co.* For more information, check No. 3 on the postcard.

### Tube Fittings

Both the Flodar Fluid Fortress no-flare fittings and Grip Tube flare type fittings for sealing hydraulic pressures that will burst the tube are described in a 12-p. catalog listing specifications. *Flodar Corp.* For more information, check No. 4 on the postcard.

### Industrial Baskets

Cleveland wire baskets of all types, shapes and sizes, standard and custom-tailored, to suit any in-

New publications that describe money saving equipment and services are available free and without obligation. Copies can be obtained by filling in the attached card and mailing it.

dustrial need, in a wide range of designs and materials, are described in a new 4-p. bulletin. *Cleveland Wire Cloth & Mfg. Co.* For more information, check No. 5 on the postcard.

### Rust Control

Causes, effect and proper means for the control of rust, particularly in relation to the power transmission and utility industries, are dealt with in a new 6-p. engineering data sheet describing Rustarest. *International Rustproof Corp.* For more information, check No. 6 on the postcard.

### Melting Furnaces

A portion of the extensive line of Stroman metal melting furnaces and melting room equipment is described and illustrated in a 16-p. bulletin. *Stroman Furnace & Engineering Co.* For more information, check No. 7 on the postcard.

### Rivet Fastening

Specifications and prices for numerous sizes and types of rivets, as well as rivet, finish and quantity discount schedules, are given in a 4-p. folder. *Milford Rivet & Machine Co.* For more information, check No. 8 on the postcard.

### Electrical Contacts

Information on electrical contacts of value to design engineers, including a thorough discussion of electrical contact materials, is contained in a new 36-p. bulletin also describing Fansteel electrical contacts. *Fansteel Metallurgical Corp.* For more information, check No. 9 on the postcard.

### Pulp Density

Pulp density, percent solids and conditioning times required for given volumes of pulp are easily determined by means of pulp density scale tables issued in an 8-p. bulletin also describing the Denver Pulp Density Scale. *Denver Equipment Co.* For more information, check No. 10 on the postcard.

### Shovel Cranes

Applications, construction details, customer benefits and specifications of the new HC-51 truck-mounted shovel crane with Speed-o-Matic hydraulic controls are presented in catalog 2322. *Link-Belt Speeder Corp.* For more information, check No. 11 on the postcard.

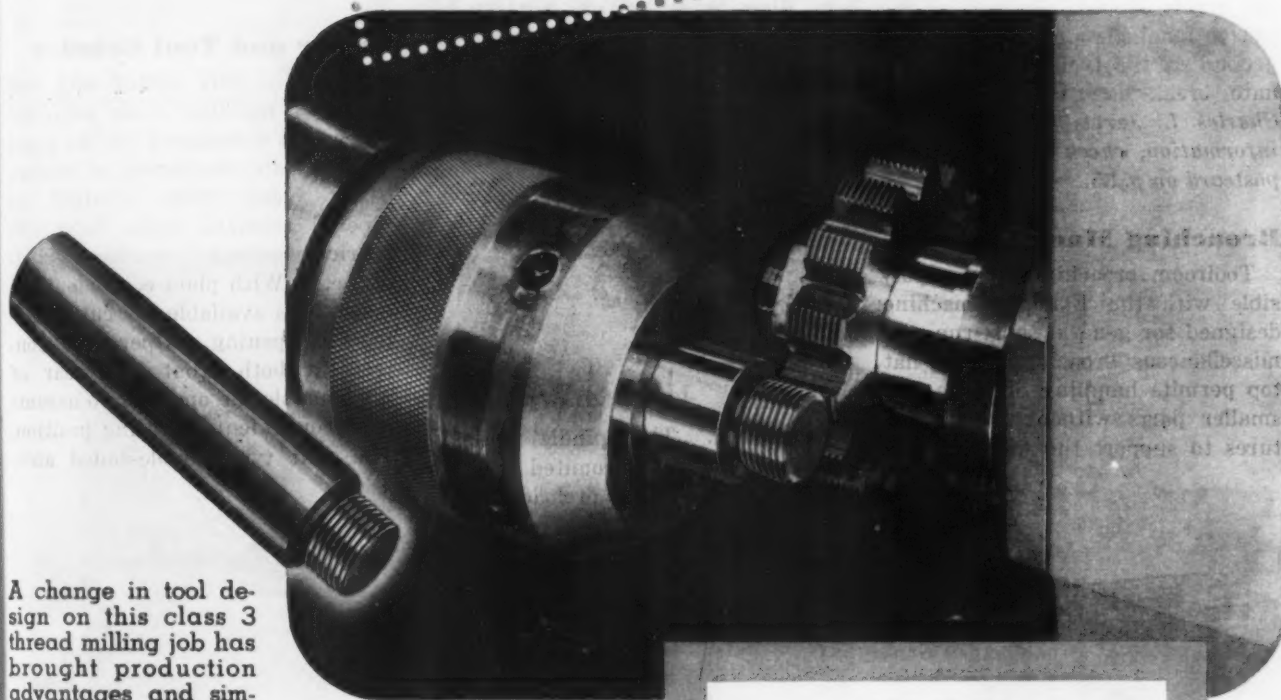
### Processing Equipment

A pictorial story of the fabrication of steel alloy tanks and pressure vessels, along with com-

Turn to Page 104

5

# REASONS WHY IT PAYS TO USE BARBER-COLMAN Job-Engineered Cutters



A change in tool design on this class 3 thread milling job has brought production advantages and simplified operation—evidence that it pays to use cutters designed to suit the job conditions.

Ground shank type thread mills previously used have now been redesigned as unground shell type cutters. In addition to the larger diameter and greater number of teeth, this design provides a rigid, short-coupled drive.

Results show: **FASTER SET-UP**—due to easier mounting on the machine and gaging size across an even number of teeth; **EASIER SHARPENING**—three cutters at a time in place of one; **MORE TOOL LIFE**—larger number and longer cutting teeth give 3 times as many sharpenings and 50% more pieces per sharpening; **LESS TOOL COST**—unground cutters produce the accuracy required; and **MORE PRODUCTION**—8 pieces more per hour are threaded.

## JOB FACTS

Operation — Mill  $3/4$ "-16 class 3 threads on pump shaft.

Material — 4120 Steel, 25 R.C.

Cutters — B-C Job-Engineered Shell Thread Mills,  $3" \times 5/8" \times 1"$ .

Speed — 225 RPM

	Former	Present
Fl-to-Fl. —	27/hour	35/hour
Tool Life —	5 Sharp., 100 pcs. per sharp.	15 Sharp., 150 pcs. per sharp.

It pays to use Job-Engineered cutting tools wherever standard dimensions will not apply. The savings speak for themselves.

## Barber-Colman Company

GENERAL OFFICES AND PLANT, 8912 LOOMIS ST., ROCKFORD, ILLINOIS, U. S. A.

## METHODS ENGINEERS!

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# NEW

## PRODUCTION IDEAS

Continued

oppose a crushing load on the cutting edges, are claimed to ream to closer tolerances providing more perfectly round holes. All lands are highly lapped. Instead of the conventional chamfer, a radius is ground at the front end to eliminate break down of the corner. *Charles L. Jarvis Co. For more information, check No. 27 on the postcard on p. 35.*

### Broaching Machine

Toolroom broaching is now possible with the Flat-Top machine designed for general short-run and miscellaneous broaching. The flat top permits handling of large and smaller parts without special fixtures to support the work. Table

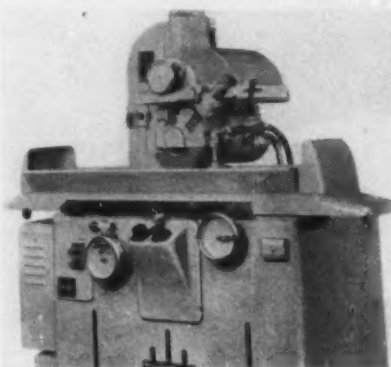


height is 48 in. and heavy parts can easily be placed on the table and removed, since there are no obstructions. Toolroom uses include broaching elongated holes in broach bars, slotting, keyway broaching, broaching irregularly shaped holes, broaching fixtures, etc. The machine weighs 4 tons. *Colonial Broach Co. For more information, check No. 28 on the postcard on p. 35.*

### Toolroom Grinder

Features of the new Type 2F toolroom grinder include all hardened and ground sliding bearings, and ground thread type feed screws. The machine has a horizontal grinding wheel spindle and reciprocating work table grinding with the periphery of the wheel.

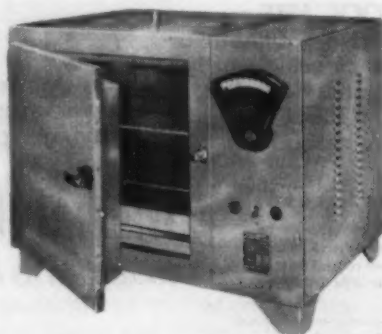
Capacity of longitudinal work is 24 in. Maximum table movement is 29 in.; traverse 8 in.; vertical 10 in. from table to underside of 12 in. diam wheel. Work surface is



24 x 8 in. The spindle is heat treated alloy steel mounted in permanently lubricated preloaded ball bearings. The wheel is 12 in. diam x 3/4 in. face x 3 in. bore. It has a 3600/1800 rpm two speed wheel head. Grinding wheel surface speed is 5400 fpm. Hydraulically operated table speed is 5 to 70 fpm. *Thompson Grinder Co. For more information, check No. 29 on the postcard on p. 35.*

### High Temperature Ovens

Blue M Hi-Heat electric gravity convection ovens are designed for production or laboratory work requiring controlled clean dry heat above the average in baking, drying

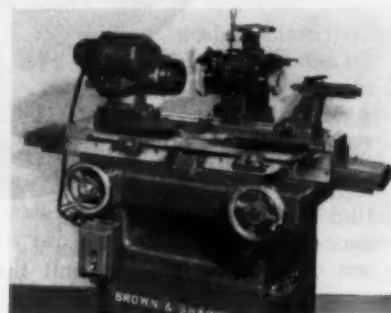


or preheating. Ovens have double walled housing and door of polished stainless steel, inside and out. All six sides have 5-in. dual insulation; Therm-O-Block plus Fiberglass

wool. Intake ports at the bottom of the oven allow fresh air to enter and be diffused through a perforated diffuser plate. An electric indicating and controlling hydraulic unit automatically maintains the oven temperature. Three series having ranges to 800°F, 1000°F, and 1200°F are available. *Modern Electric Laboratory. For more information, check No. 30 on the postcard on p. 35.*

### Cutter and Tool Grinder

The No. 10N cutter and tool grinding machine with universal equipment is designed for the rapid and accurate sharpening of milling cutters, end mills, straight or tapered reamers, saws, light cylindrical, internal, surface grinding, etc. With plain equipment the machine is available for cutter and tool sharpening. Operating controls at both front and rear of table enable the operator to assume most convenient operating position. The unit type double-ended anti-



friction wheel spindle with speeds of 3000, 3750 and 4500 rpm can be swiveled to a horizontal plane. Mounting of sliding table on precision-ground steel rollers gives easy table movement. The wheel spindle motor and driving mechanism are enclosed in the base. *Brown & Sharpe Mfg. Co. For more information, check No. 31 on the postcard on p. 35.*

### Forming Machine

Forming operations of external grooves and shapes and various end operations can be performed on tubular or solid stock by a new two spindle automatic machine. Single or double, hollow, collet type spindles are available. The heavy duty tool slides carry the form and end operation tools, advancing and

Turn to Page 105

## Iron Age

# Introduces



**EUGENE G. SHEASBY**, assistant district manager, Pittsburgh district, United States Steel Supply Co.



**ROBERT P. MERRITT**, president, Hartford Special Machinery Co.



**LEONARD A. DAVIS**, president, Morrison Engineering Corp.

Eugene G. Sheasby has become assistant district manager for the Pittsburgh district of UNITED STATES STEEL SUPPLY CO., warehousing subsidiary of U. S. STEEL CORP. Associated with the company since 1946, Mr. Sheasby has been general staff manager, general sales department, with headquarters in Chicago since 1949.

F. M. Gillies has resigned as works manager of the Indiana Harbor plant of INLAND STEEL CO. A. P. Miller, general superintendent of the Indiana Harbor plant, has been transferred to inactive status under the company's retirement plan. H. W. Johnson, vice president in charge of steel manufacturing, is acting supervisor of the plant.

Robert P. Merritt was elected president of the HARTFORD SPECIAL MACHINERY CO., Hartford. Mr. Merritt has been with the company since 1933. He succeeds his father, the late Joseph Merritt, one of the original founders of the company. Elected to the position of executive vice president was Ernest W. Smith, Jr. Other officers elected were William H. Storrs, Raymond J. Dunn and Edward J. Sanderson.

A. W. Pollard was added to the sales engineering staff of AURORA METAL CO. as representative for aluminum bronze and silicon bronze vacuum die castings in New York state and the New York metropolitan area.

Leonard A. Davis has been elected president of the MORRISON ENGINEERING CORP., Cleveland. He succeeds Carl R. Sare, who left to join another company. Mr. Davis was formerly associated with the LOMBARD CORP., Youngstown.

George F. Rotenkolber is resigning from JUDSON PACIFIC-MURPHY CORP., Emeryville, Calif., to accept an executive position with another steel company, as yet unidentified.

Otto G. Schwenk has been elected to the board of directors of the YALE & TOWNE MFG. CO., to succeed the late F. Carroll Taylor. Mr. Schwenk has been serving as vice president in charge of production since 1948.

# Iron Age *Salutes*

## AVERY C. ADAMS



**F**RIENDS always play a big part in life's successes. Some men admit it and some don't. Those that do seem to make more and more friends. And then their star goes higher.

Avery C. Adams is one of these people. But no one will call him Avery except those who must be formal under any circumstances. He is Ave to hundreds of people in and out of steel. For years he has been in the thick of selling, mixing and carrying out important jobs.

But his friends are not the whole story. He knows how to sell. He has the facts to convince and the personality to close the deal.

He got his start in Warren, Ohio, with Trumbal Steel where he went from a laborer in the openhearth to assistant general manager of sales. When Trumbal merged with Republic Steel Corp. Ave became manager of tinplate sales.

On Aug. 1, 1928, he joined Gen-

eral Fireproofing Corp. at Youngstown (his home town). He was made vice-president and a director. From there he went to the steel industry in 1936 as head of sheet sales of Carnegie-Illinois Steel Corp. where he stayed until December, 1938.

Having been in the thick of the rough sheet steel market in 1936 and 1937, Ave came to know a lot about competitive selling. He still does.

On Dec. 1, 1938, Ave went to Inland Steel Co. as vice-president where he remained until August, 1939. Then he was called back to U. S. Steel to become vice-president of sales of the Delaware company. While there he consolidated sales practices and at the same time served on various committees to see that as much steel as possible was shipped quickly for the war effort.

Ave left U. S. Steel Corp. in 1945 and went into the export business as a partner in a New York exporting house. But early in 1949 the steel industry beckoned to him again and he went to the Portsmouth Steel Corp. as vice-president. When that company was purchased by Detroit Steel Corp., Ave became executive vice-president.

But he did not stay long because Pittsburgh Steel Co. wanted him. He became president of that company when Joe Carter moved up to board chairman and executive officer.

One thing Ave knows is steel. He has made friends all over the place and he can properly be called an up-from-the-bottom man in an industry he loves and serves.

## IRON AGE INTRODUCES

*Continued from Page 41*

**P. B. Erwin** is the new manager of production and service for BETHLEHEM SUPPLY CO. of California and **J. C. Graves, Jr.**, was appointed manager of the machinery sales.

**C. W. Tripp** becomes a member of the engineering staff of TAYLOR & SPOTSWOOD CO., San Francisco.

**Robert E. Cope** was appointed general manager of the permanent molding division of MICHIGAN WHEEL CO., Grand Rapids.

**Frank A. Burns** is serving as director of public relations, Los Angeles district, for the U. S. STEEL CORP. Assisting **Charles W. Huse**, recently appointed director of public relations for the western district is **Harry Williams**, whose headquarters are in San Francisco.

**Gordon F. Simons** was appointed director of research for the BERYLLIUM CORP., Reading Pa. **W. Thomas Peterson** will succeed Mr. Simons as general sales manager.

**Edward Hering** has been relieved of his duties as chief engineer of the UNITED STATES PIPE & FOUNDRY CO. to take over the position of engineering consultant, in which he will act in an advisory capacity to the president of the organization. **Lawrence T. Haugen** succeeds Mr. Hering as chief engineer. **Rudolph Lanberg** was transferred from the operating department to the engineering department as assistant chief engineer.

**A. G. Hendrickson** was promoted to assistant sales manager of the welding division of HARNISHFEGER CORP. Mr. Hendrickson will be assistant to **Melvin O. Monsler** who was recently promoted from assistant to sales manager.

**Robert O. Bullard** has been appointed assistant business and construction manager of the KNOLLS ATOMIC POWER LABORATORY, the atomic laboratory operated by GENERAL ELECTRIC for the Atomic Energy Commission.

**Roland C. Perrault** was promoted from sales representative to manager of the company's Worcester district office for the DETROIT STEEL CORP. **J. B. Ribakoff**, until recently a vice president and manager of the Worcester office, has retired.





**GEORGE F. JENKINS**, sales manager, the National Screw & Mfg. Co.

George F. Jenkins was appointed sales manager of the NATIONAL SCREW & MFG. CO., Cleveland. Mr. Jenkins has been industrial sales manager of the company since 1948. He succeeds B. H. Jones, vice president of sales, who under that title will continue in an advisory capacity in sales activities.

Arlington Kunsman was appointed assistant general manager of DU PONT CO.'S newly created film department. Donald F. Carpenter serves as general manager. Mr. Kunsman, who is manager of the Cellophane Division of the company's rayon dept., assumes his new duties when the department is activated on April 1.

William G. Miller became executive assistant to the chairman and president of AMERICAN LOCOMOTIVE CO. Since 1948, Mr. Miller has been manager of the company's Auburn, N. Y., plant. He is succeeded at Auburn by Charles T. Lathrop, formerly Auburn works manager.

Leonard C. Pietsch was made superintendent of the sheet mill and galvanizing department of the INLAND STEEL CO. Mr. Pietsch, who was formerly superintendent of the 10-and-14-inch mills, replaces Howard W. Bradley, who has resigned. John G. Rothfuss will remain as an assistant superintendent in the sheet mill and galvanizing department and Robert W. Rost, formerly a shear foreman, will serve as an assistant superintendent under Mr. Pietsch.

William Darrach has been appointed sales engineer for the AUTOMATIC TRANSPORTATION CO., Chicago. Mr. Darrach will cover Union, Middlesex and Monmouth counties, New Jersey.



**C. C. KENNEDY**, assistant purchasing agent, Crucible Steel Co. of America.

Keith E. Carter, Thomas R. Corn, Ralph I. Coryell, Warner Jennings, William C. Mitchell and H. Norris Robinson, sales application engineers, were added to district sales offices of the RELIANCE ELECTRIC & ENGINEERING CO. The men will be located in the Pittsburgh, Cleveland, Syracuse, Detroit, Philadelphia and New York offices of the firm.

Ralph A. Clark, formerly in the Chicago office of the electro metallurgical division of UNION CARBIDE & CARBON CORP., has been appointed assistant manager of development in the Detroit territory. Mr. Clark succeeds William B. McFerrin, who was recently promoted to the position of division executive vice president of the Haynes Stellite division in Kokomo, Ind.

F. S. Jones became vice president in charge of sales for the COLORADO FUEL & IRON CORP. Mr. Jones will succeed Newell H. Orr, who has retired but will continue in an advisory capacity. The position of general manager of commercial steel sales of the western division, previously occupied by Mr. Jones, will be filled by James N. Counter, advancing from Rocky Mountain division sales manager.

J. Colin Smith has been named northwest district manager with headquarters in Seattle for the ALUMINUM CO. OF AMERICA, to succeed C. R. Boyle, who has been transferred to the Los Angeles territory. Mr. Smith was formerly sales representative at Fort Wayne, Ind. Mr. Boyle replaces William C. Lynch who remains on the west coast in the capacity of assistant products manager.



**R. O. BRIDGE**, purchasing agent, Crucible Steel Co. of America.

R. O. Bridge was named purchasing agent of the CRUCIBLE STEEL CO. OF AMERICA, with C. C. Kennedy filling the post of assistant purchasing agent. Both men are stationed in Pittsburgh, where Crucible purchasing activities are centered.

E. M. Ellis has been made Los Angeles manager of GENERAL ELECTRIC CO.'S apparatus department. He succeeds G. F. Maughmer who was named manager of the newly created company district with headquarters in St. Louis.

Herman F. Bahmeier, construction engineer for the Bureau of Reclamation, has been transferred from Davis Dam to the Delta District of the Central Valley with headquarters in Sacramento, Calif.

Howard C. Stroup has been appointed sales representative for the western section of Los Angeles, the beach cities and Orange County, and S. B. Thompson was named purchasing agent and office manager for ZIEGLER STEEL SERVICE CO., Los Angeles. Mr. Stroup was formerly with REPUBLIC STEEL CORP. and Mr. Thompson has been affiliated with Ziegler for several years.

Christian W. Planje was made vice president and general manager for GLADDING McBEAN CO. in the Seattle district. James W. Mahoney, who has been transferred from the Los Angeles office of the company, assumes Mr. Planje's responsibilities in San Francisco.

J. B. Sullivan becomes sales engineer with the PENNSYLVANIA TRANSFORMER CO. in the New York district sales office.

## Iron Age *Introduces*

*Continued from Page 23*

Robert Wardrop was appointed assistant to the vice president of PITTSBURGH PLATE GLASS CO. He was formerly manager of advertising and sales promotion. Mr. Wardrop will assist vice president Frank W. Judson in handling major national accounts.

Leon B. Wohlgemuth was made sales manager of the Chicago district office of the BABCOCK & WILCOX TUBE CO. He succeeds H. J. Leferty who was transferred to Los Angeles.



**HARRY G. McMURRY**, assistant manager of Rouge plant production foundry, Ford Motor Co.

Harry G. McMurry was made assistant manager of the Rouge plant production foundry of the FORD MOTOR CO., under E. Claude Jeter, plant manager. He was associated with BUICK in Flint, from 1927 until 1945, where he worked in various departments in the foundry.

Earl A. Tanner has resigned as a director of INLAND STEEL CO. and president and director of both the INLAND STEEL PRODUCTS CO. of Milwaukee and the INLAND STEEL CONTAINER CO. of Chicago. Mr. Tanner's decision to retire after 30 years of service came as a result of medical advice.

Perry T. Egbert was made a director of MONTREAL LOCOMOTIVE WORKS, LTD. He will serve out the unexpired term of Robert B. McColl who retired in January as president and director of the firm.

F. A. Rueter and J. W. Westhead became field sales managers for the central and eastern divisions respectively of the Hypressure Jenny division of HOMESTEAD VALVE MFG. CO., Coraopolis, Pa. Messrs. Rueter and Westhead will serve as coordinators between the factory and the factory representatives in their divisions.

Harold D. Freeman was appointed purchasing agent for PHOENIX IRON & STEEL CO., Phoenixville, Pa., a subsidiary of CENTRAL IRON & STEEL CO., Harrisburg, Pa.



**JOHN LAWRENCE**, technical vice president, SKF Industries, Inc.

John Lawrence was appointed to the newly created post of technical vice president of SKF INDUSTRIES, INC. Mr. Lawrence will be in charge of all manufacturing, engineering and research operations in the firm's plants in Philadelphia, Shippensburg, Pa., and Hornell, N. Y.

B. W. Maxey, controller of the GLIDDEN CO., was elected a director of the company. Mr. Maxey began his career with the company in 1941 as an auditor.

Arthur Keating, a director of NATIONAL ENAMELING & STAMPING CO., Milwaukee, was elected president of the organization. The resignation of Stevens A. Bennett as president and director was accepted by the board of directors, as were the resignations of John W. Cavanaugh, William H. Saunders, Jr., and John N. Marshall, also directors. Elected to fill their posts were Frances W. Magin, Anthony von Ening, David G. Baird, Cornelius Ross and Donald Graham. Mr. Keating also serves as chairman of EKCO PRODUCTS CO., Chicago.



**THOMAS E. LLOYD**, manager of publications, American Institute of Mining and Metallurgical Engineers.

Thomas E. Lloyd, machinery editor of THE IRON AGE, was named manager of publications for the AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS. He will have charge of the Institute's monthly publications, the Journal of Metals and Mining Engineering. For the past 10 years, Mr. Lloyd has held various editorial positions with THE IRON AGE in Detroit, Cleveland and Pittsburgh.

Raymond S. Doherty has joined the general sales department of the NATIONAL RADIATOR CO., Johnstown, Pa., and is assigned to the sales development of the company's steel boilers.

George Swan, former president of SWAN, INC., has joined the MURRAY TUBE WORKS, INC., tubefabricating affiliate of the A. B. MURRAY CO., INC., of Elizabeth, N. J., and McKesport, Pa.

## OBITUARIES

George A. Rohner, secretary and treasurer of the Burger Iron Co., Akron, Ohio, died on Feb. 28.

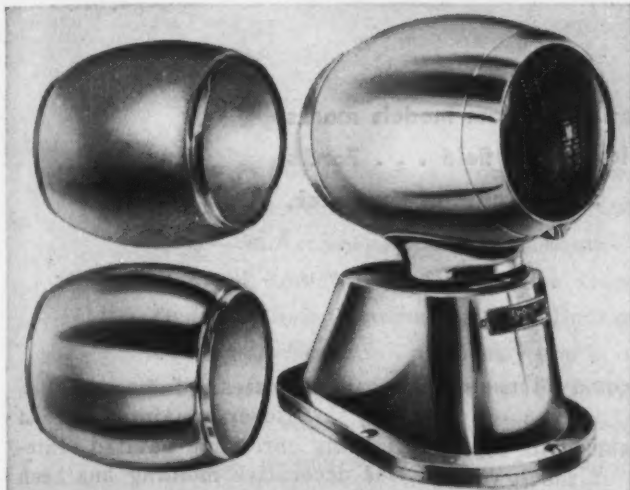
Charles J. Lang, Sr., owner of the Russell Machine Co., Pittsburgh, and a pioneer in the used and rebuilt machinery business, died recently. He was 86.

Ernest A. Bowman, 61, died on Mar. 9. He was superintendent of blast furnaces of the Hanna Furnace Corp., Buffalo, for the past 10 years and had been associated with the company since 1904.

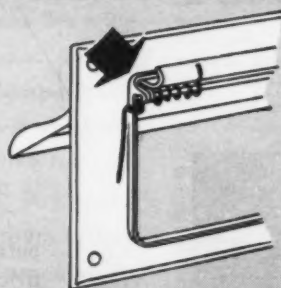
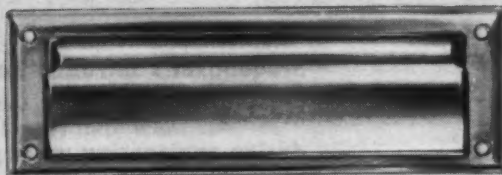


# 2 MORE EXAMPLES

how manufacturers improved their products . . .  
cut production costs with the aid of  
**REVERE PRODUCTS and SERVICE**



UPPER LEFT shows brass shell of the Rev-O-Lite as it comes from the bulging die. Without any extra finishing, which would have been necessary had shell been made of strip and brazed, shell is chrome plated as shown at lower left. At right is the completed assembly of the Rev-O-Lite ready for action on the roofs of all kinds of emergency vehicles such as police patrol cars, ambulances, fire trucks, etc. Chrome finish base is of cast zinc alloy.



THE LETTER BOX PLATE that is not only one of the first to be made from wrought brass but, the Ives Company tells us, has been generally accepted by the trade as the equal of similar items in cast brass. Another example of what can be accomplished when manufacturer and supplier work together.

Line drawing directly above shows detail of construction with Ives exclusive, Weather-Tite interlocking feature.

1. In the development of their Rev-O-Lite, a revolving warning light for emergency vehicles, the Balford Corporation, Jacksonville, Florida, found themselves faced with a production problem regarding the cylindrical shell which contains the lights. The question was; what would be the most efficient and economical way to produce this shell that measures 6" in length and is 4½" in diameter at the ends? Should it be formed from a metal strip and brazed? Could tube be used and bulged in a die? Or, should some other method be employed.

Revere, working with the design engineers of the Balford Corporation, exchanged ideas, weighed the pros and cons of various methods; experimented. They found that by using 70/30 Revere Brass Tube in a light anneal temper, it would take the bulging in the die satisfactorily and at the same time show up well as far as grain size control was concerned. By this method, complicated and costly forming operations and brazing could be eliminated; production speeded and the shell formed without any unsightly seam. Also, no extra hand finishing would be necessary before plating.

2. How can you make a letter box plate out of wrought brass and at the same time have it look like cast brass? This problem of the H. B. Ives Company, New Haven, Conn., came up while the Ives engineers were designing a new type plate employing a new method of interlocking the flap and the frame of the box to insure its being weather-tight.

Casting was ruled out as too costly and impractical to construct. If brass strip was used it had to be heavy

enough to simulate cast hardware, yet sufficiently flexible to complete a U bend on a 7" length without fracture or distortion. Also, because the finished plate would in most cases call for a natural brass finish, the stock had to be the right color.

After several consultations with Revere Technical Advisory Service and experiments in their own shop, it was suggested that Revere sheet brass of .062" thickness and of a certain temper be used. That was it! The combination of proper design and heavy gauge metal resulted in a neat but rugged appearance. The wrought construction made it possible to produce a Weather-Tite plate with exclusive interlocking feature without costly machining operations. In addition, finishing costs were reduced to a minimum.

Perhaps one of the many types of Revere Brass or one of the other Revere Metals or Alloys can help you improve *your* product—cut your production costs. Why not tell Revere's Technical Advisory Service about *your* metal problems? Call the Revere Sales Office nearest you today.

## REVERE

**COPPER AND BRASS INCORPORATED**

*Founded by Paul Revere in 1801*

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Sales Offices in Principal Cities, Distributors Everywhere.



# On the ASSEMBLY LINE

## AUTOMOTIVE NEWS AND OPINIONS

**Studebaker's introduction of its new custom models marks start of fierce competition in low price field . . . Ford's design-engineering unit opened . . . GM profits at new peak.**



by

*Walter G. Patten*

**Detroit**—Many indications point to the probability that the low-priced passenger car field will be crowded in the very near future.

This was made clear last week when Studebaker announced its new Champion Custom model at a price approximately \$75 below its Deluxe Champion models. Nash will also introduce a new entry in the low-priced field during April. The unnamed Kaiser-Frazer car goes into production in June. Willys-Overland will have a new passenger car although this may not be ready until early in 1951.

Inasmuch as Chevrolet, Ford, and Plymouth have yet to be heard from in case the new low-priced models get off to a fast start, it is increasingly evident that competition in the low-priced

field may easily become intense—to put it mildly.

The new Studebaker will compete in the middle of the lowest price range along with Ford, Chevrolet and Plymouth. The new Custom four-door sedan is priced \$60 above the comparable Chevrolet model and \$47 above the Ford six-cylinder four-door model. It will sell at \$50 below the four-door Plymouth and \$23 under the Ford V-8 sedan.

### **Month's Supply on Hand**

In introducing the new car, Kenneth B. Elliott, vice-president in charge of sales, said that this is a long-range move by Studebaker. This is a car for buyers who want transportation without frills at minimum cost, Elliott explained.

Currently, Elliott said, Studebaker has only about one month's supply of cars in dealers' hands. February was the best retail sales month in the company's entire history. Stocks are unusually low going into the spring selling period, he said.

The new Studebaker Custom approximates what auto owners used to think of as a "standard" model. The body shell is identical with the other Champion models. There is no pebble guard at the front of the rear fenders. The car has only one sun visor. The tail-lamp bezel

is painted instead of chromed. The gear shift lever is painted instead of being chromium painted. Interior decorative molding has been largely eliminated.

Elliott explained that the car weighs about 12 lb less than the Deluxe Champion. Part of the \$75 reduction results from decreased cost of the new model. Studebaker hopes to make up the difference through increased volume, Elliott said.

Because of limitations on steel supply, Studebaker will not be able immediately to increase its production schedules of about 1200 cars and 200 trucks per day. Ultimately, the new Custom models are expected to account for a minimum of 20 pct of Studebaker production.

### **Ford's Design-Engineering Unit Enters Production Scene**

Many automotive executives have come to regard coordinating product design and manufacturing as a No. 1 job in plant operations. For a number of years, GM has had a Production Engineering Department which handles this responsibility and related functions. For the past several years Ford has been organizing a similar activity.

In a speech this week to the SAE, Del S. Harder, vice-presi-

# Accuracy Headquarters

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INDUSTRIAL COST-CUTTING  
Exposition

NOT One  
... BUT



It pays to buy Tools on a Performance Basis. But first you'll want the facts. Attend the April ASTE Show at Philadelphia, and you'll get the facts — at Accuracy Headquarters, Booth 815. There you'll see the wide range of Pratt & Whitney Precision Gages . . . Conventional Gages, Basic Measuring Equipment, Air-O-Limit and Electrolimit Comparators, Continuous Gages . . . on display and in action, actual proof of P&W's famed accuracy and cost-cutting efficiency. You'll also see the full line of Pratt & Whitney Precision Cutting Tools . . . taps, dies, end mills, reamers, milling cutters, carbide tools . . . every one of them a key

factor in attaining maximum productivity and economy during competitive 1950.

If you cannot attend the Show, get the facts directly from Accuracy Headquarters at West Hartford, Conn. An inquiry will bring the Bulletins you want.

And at Booth 632 you'll see why P&W KELLERFLEX Flexible Shaft Machine makes craftsmen — especially when tooled with KELLER Carbide DI-BURS, the new design in burs that produces harmless, granular chips, not painful slivers, from tough or hard metals.

Also see DIAFORM — the new P&W Precision Wheel Forming Attachment — form-dressing grinding wheels from a template, to tenth of a thousandth accuracy, in a matter of minutes.

AT BOOTH  
815

PRATT & WHITNEY

AT BOOTH  
632

KELLERFLEX

PRECISION TOOLS & GAGES

**PRATT & WHITNEY**

Division Niles-Bement-Pond Company  
WEST HARTFORD 1, CONNECTICUT



"There's no better-paying investment  
than the Right Tools for the Job"

March 23, 1950



**QUALITY FIRST:** Statistical quality control charts being explained by Gordon Lyall, final assembly lines superintendent at Ford Motor Co.'s Dearborn, Mich., plant to Ford parts suppliers. The suppliers attended a two day statistical quality control course given by Ford so they can apply Ford's quality control methods to their operations.

dent-manufacturing, Ford Motor Co., described in detail the new Ford setup.

Ford now has a central staff and in each division and in major plants is a parallel manufacturing and engineering organization. On the central staff headed by the director of manufacturing engineering are eight departments: Engine Processing, Sheet Metal Processing, Plant Layout, Material Handling Engineering, Industrial Engineering, Design and Standards, Production Analysis, and Manufacturing Research.

#### Dept. Functions Fixed

Harder explained that the process departments are responsible for developing operation sheets and selecting machines, tools, fixtures and equipment. Plant layout makes layouts, selects conveyors and similar equipment. Material Handling Engineering supervises all phases of material handling. The Design and Standards Department designs special equipment and develops company-wide standards for tools and equipment. The Production Analysis Department makes studies of present facilities and proposes changes in parts and facilities. Manufacturing Research studies metals and methods and supervises specifications of materials and processes.

The Ford philosophy as described by Harder is this: progress by the industry in improving machines, tools and equipment has made it possible to reduce the

number of operations and to improve cycling. By tying in these improvements—at the planning stage—with all of the other elements such as automation, material handling, and plant layout, there is a greater possibility of reducing both direct and indirect costs and of avoiding production bottlenecks.

It is expected that the independents will tend to organize their design and manufacturing activities along somewhat similar lines if they have not already done so. Of course, size limitations will prevent such detailed organization by many of the smaller firms. Nevertheless, the trend in this direction is very strong.

#### GM's Net Income Slightly More than Total Taxes Paid

GM's record-breaking net earnings during 1949 of \$656 million have received ample publicity in the daily press. However, in order to gain a sense of proportion about GM's 1949 performance it may be helpful to list the significant figures on GM's income statement, placing the largest totals at the top of the list.

Total sales	\$5,700,835,141
Total payrolls	1,440,690,450
Total Taxes (including sales & excise taxes)	879,070,000
Net income	656,434,232
Total taxes paid by GM	580,000,000
Total vehicles—1949	2,764,397
1948	2,146,305
Average 1936-1941	1,844,640

It is interesting to note that

GM's net income was only slightly larger than the taxes actually paid by the corporation and it was substantially less than the total taxes GM raised for Uncle Sam of \$879 million.

GM's record breaking net income in 1949 was less than half its total payrolls and represents about 11.5 pct per dollar of gross sales.

#### Path of Sales Dollar

It is interesting to observe what happens to the GM sales dollar. Approximately 50¢ goes to suppliers for materials and services. Payrolls account for an additional 26¢ and federal, state and local governments take 10 pct for taxes. Depreciation allowances account for another 2 pct. This leaves about 11.5¢ for the owners of the business. During 1949 GM's 434,000 stockholders received in dividends 6.4¢ for every dollar collected from the company's customers.

In the report, it may be noted that GM is now retailing its products through 18,000 U. S. merchants and that it buys materials and services from more than 12,000 U. S. business establishments.

In view of its improved capital position, GM has prepaid its \$125 million long-term 2½ pct note issue sold in 1946. This retires GM's only long-term debt.

#### Packard Motor Profits Plunge

Packard Motor Car Co. 1949 production of 104,593 units was the second largest in the firm's 50 year history but reduced prices and curbed production held earnings far below the 1948 level, said Hugh J. Ferry, president.

The company listed a '49 net income of \$7,706,042, or 51¢ a share, as compared with \$15,109,439 or \$1.00 per share in 1948. Consolidated net sales and other income for 1949 were \$214,169,118; current assets, \$61,287,028; and assets in government and miscellaneous securities, \$18,104,789.



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March 23, 1950

# WEST COAST PROGRESS REPORT



**Except for a few soft spots, steel producers and users report present business good and future prospects better.**

## Digest of Far West Industrial Activity



by

*J. Reinhardt*

San Francisco — "How's business?" is the question which apparently is being asked among steel producers and users with more frequency than usual with the sincere hope of getting a factual rather than a courtesy response.

Checking all principal western steel producers and a good cross section of structural steel fabricators and metal working plants the answer almost invariably is "good."

### Present Volume Satisfactory

Manifestly the steel industry in the West is, in general, satisfied with the present volume of business. With one exception, primary steel producers report business as excellent with an overall average operating rate here of 93 pct. Only one major producer is appreciably below the average which is reflected by the layoff of approximately 4 pct of its operating personnel recently. Most producers report a strong demand for all products produced in the West with the exception of structural

shapes and reinforcing bars which show some softness. There are indications that the rolling capacity for these two items in the West is well above what may be considered a normal demand.

Structural steel fabricators generally report business as being only fair and that bidding is getting extremely competitive. Whereas not too long ago fabricated and erected steel was being bid at from \$200 to \$300 per ton, one recent job was let on a bid of slightly less than \$150 per ton. While this was apparently an unusually low bid, recent awards continued to reflect the use of sharper pencils.

Metal working plants producing home appliances are operating at

sustained high levels and foresee no immediate prospects of curtailments in view of the continuing high rate of home construction.

Producers of agricultural machinery and implements are not all faring equally well. For example, producers of disc plows in the West are only now overcoming the effects of production last year at rates higher than the market could absorb the implements, while manufacturers of irrigation equipment utilizing light walled pipe of both aluminum and steel indicate a brisk current demand.

Reports from the East and Midwest indicate a continuing heavy steel demand and are encouraging to western producers who have learned that business in general in the West follows conditions in the East although major trends either up or down aren't followed here without a time lapse. In this connection the remarks of A. W. Zelomek, president of the International Statistical Bureau, Inc. of New York in an address here before the Purchasing Agents Assn. of Northern California were listened to with considerable interest by the steel buyers present.

### Can't Maintain Capacity

Mr. Zelomek contends that the normal economy of the country cannot maintain steel production at anywhere near its current 90 pct of capacity. He stated that this fact may have been proved in 1949 had it not been for the steel strike and perhaps will not be revealed in 1950 because of the production lost through the coal strike. He expects a general

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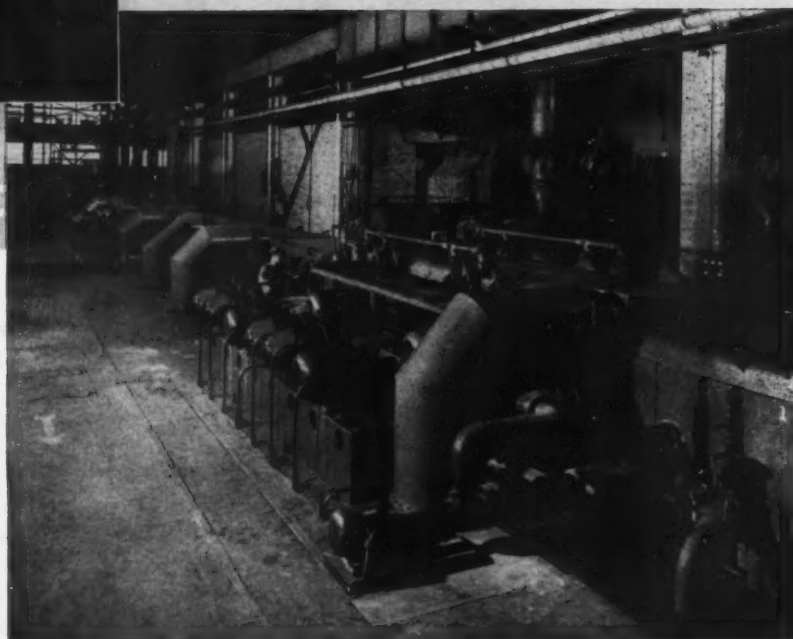
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softening of the economy in the fall when he forecasts automobile production will drop 10 to 15 pct and perhaps a reduced demand for other hard goods. This economist indicated that high production levels in the hard goods industry could only be maintained by reduced prices, and that it was apparent to him from the high earning statements of many corporations last year that such reductions could be effected. It was his contention that labor would continue to scrutinize such earning statements closely and if they continue to remain high would constitute the basis for further demands for wage increases.

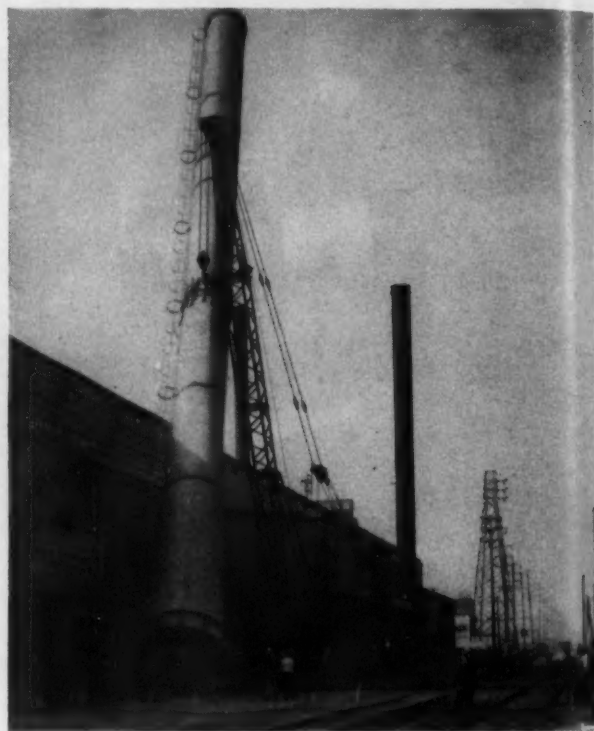
In spite of such prognostications, steel producers and fabricators alike are optimistic about the remainder of this year, relying heavily for their point of view on the pent-up demand for both public and private non-residential construction and the public works program of the Federal and state governments.

### Utah Copper and Union Reopen Discussion on Wage Differential

Salt Lake City—The issue of wage differentials as between train service employees on ore haulage lines and open pit mine railroads is again up for negotiation in the copper mining industry. The union involved is the Brotherhood of Locomotive Firemen & Engineers and officials have indicated they will take strike action unless the long-standing controversy is settled.

The union, which demands the same rate of pay for employees working on pit trains as prevails on the mine-to-mill lines, has reopened discussions with the Utah Copper division of Kennecott Copper Corp. And whatever settlement is reached in that dispute will probably set a pattern for other operations, as the same issue is up at virtually all Kennecott, Anaconda and Phelps-Dodge operations, according to S. C. Phillips, vice-president of the international union.

**STEEL STACK:** New steel furnace stack, weighing 26 tons, being raised into position upon its steel reinforced concrete base at Bethlehem Pacific Steel Corp.'s Los Angeles plant. It will service the new billet heating furnace which is part of the modernization of the plant's 12 in. rolling mill.



While not many men are involved, a strike by the union can tie up virtually the entire industry.

Kennecott's Utah operations were suspended during the last two months of 1948 and the first month of 1949 over the same issue. That strike was suspended to permit the case to go before a fact-finding board. The company declined to accept the recommendations of the fact-finding board but the union, instead of renewing the strike, agreed to hold the issue in suspension until some future time.

### Alcoa to Build Aluminum Producing Plant in Alaska

Seattle, Wash.—Reports that the Aluminum Co. of America has acquired property near Dyea and at Skagway, Alaska for the construction of primary aluminum producing plant at a cost of approximately \$70 million, indicates furtherance of the project which has been under survey for many months. Extensive studies have been made by Alcoa of the water sheds of British Columbia to determine the feasibility of using Canadian power for its operation.

A Seattle consulting engineer

with long experience in the development of Northwest power, recently indicated that in his opinion there unquestionably was water power available to produce sufficient electric power to operate a reduction plant of almost any economic and foreseeable size.

### Power Shortage Danger Passes

Explorations made by Alcoa in central British Columbia have revealed sites for a dam which reportedly would permit the generation of more than one million KW. Grand Coulee will have a peak capacity of about 2,160,000 KW. Already it has been estimated that the cost of power delivered at the Dyea site would be lower than that charged for BPA power at the plants of Alcoa and other primary producers in Washington.

Both the Aluminum Co. of Canada and Reynolds Metals Co. have also indicated interest in putting in reduction plants in British Columbia.

At present, producers of aluminum in the Pacific Northwest are continuing to operate at capacity and the expectation is that all danger of any power shortage in this area this year has been passed.

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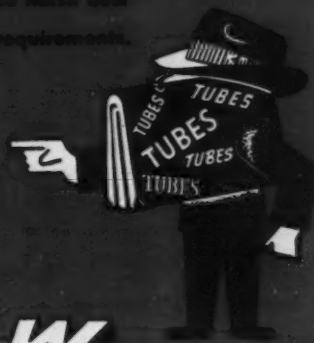
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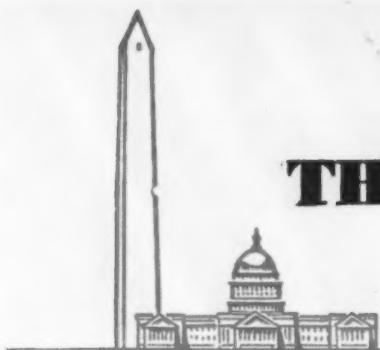


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## THE FEDERAL VIEW

THIS WEEK IN WASHINGTON

**Indirect and irresponsible moves of congressmen build up feeling of ill-will toward industry . . . Sen. O'Mahoney wants steel industry to give notice of price increases.**



by

*Eugene J. Hardy*

**Washington**—Direct steps toward destruction of the traditional American way of doing business have been emanating from Congress and the Administration for almost two decades. This nibbling away has been in the form of laws, executive orders, rules and regulations of all kinds. Conflicting in purpose, in many instances, all of these steps have further impinged on the right of American citizens to freely conduct their own affairs. Some have proven their worth, but others have only served to further the quack theories of the economic group then in the ascendancy.

### **Steel Industry Pilloried**

Some of these direct moves have been modified over the years, but not many. A lone example is the Taft-Hartley Law which attempted to restore some equality to the field of labor - management relations. Significantly, this law, designed to end the one-sidedness of the Wagner Act, was enacted during the 80th Congress, the only two-year period since 1933 when the Democrats did not control the Congress.

These direct moves toward social-

ization, the welfare state, nationalization, or what have you, dangerous as they are, can in many instances be successfully beaten down for they must be approved by elected officials of the Federal Government who must stand before the public on the positions they have taken.

Even more dangerous, however, are the indirect and often irresponsible moves which are designed to create a feeling of public ill-will toward business and industry. There is no better example of this technique than the constant pillorying the steel industry has been subjected to in recent years at the hands of various Congressional committees. The most recent of these irresponsible investigations is the one conducted by Sen. O'Mahoney, D., Wyo., and the Joint Economic Committee which he heads.

A past master at publicity and a pre-judging critic of the steel industry of long standing, Sen. O'Mahoney has finally hit the jackpot. Now he wants the steel industry to file advance notice of price increases with the Federal Trade Commission and hold off putting them into effect for 30 days while

hearings are held. He also wants a study made to determine whether the steel industry should be regulated as are public utilities.

### **Can't Report Legislation**

The dangers in such irresponsible action are many. Most important is the fact that such investigations are usually conducted by non-legislative committees, of which the Joint Economic Committee is one. Legislation cannot be reported by these groups and the chairman is free to go off on all sorts of tangents. Since there is no legislation, the members of Congress do not have to step up and be counted on many of the issues raised by these committees. In the public mind, however, the Congress, as a whole, has decided that the steel industry is a bunch of crooks out to cartelize the country. With effective publicity for such sensational proposals, the groundwork is effectively laid, convincing the public that legislation to control the industry, if and when introduced, is necessary.

Historically, the most socialistic proposals have always come from

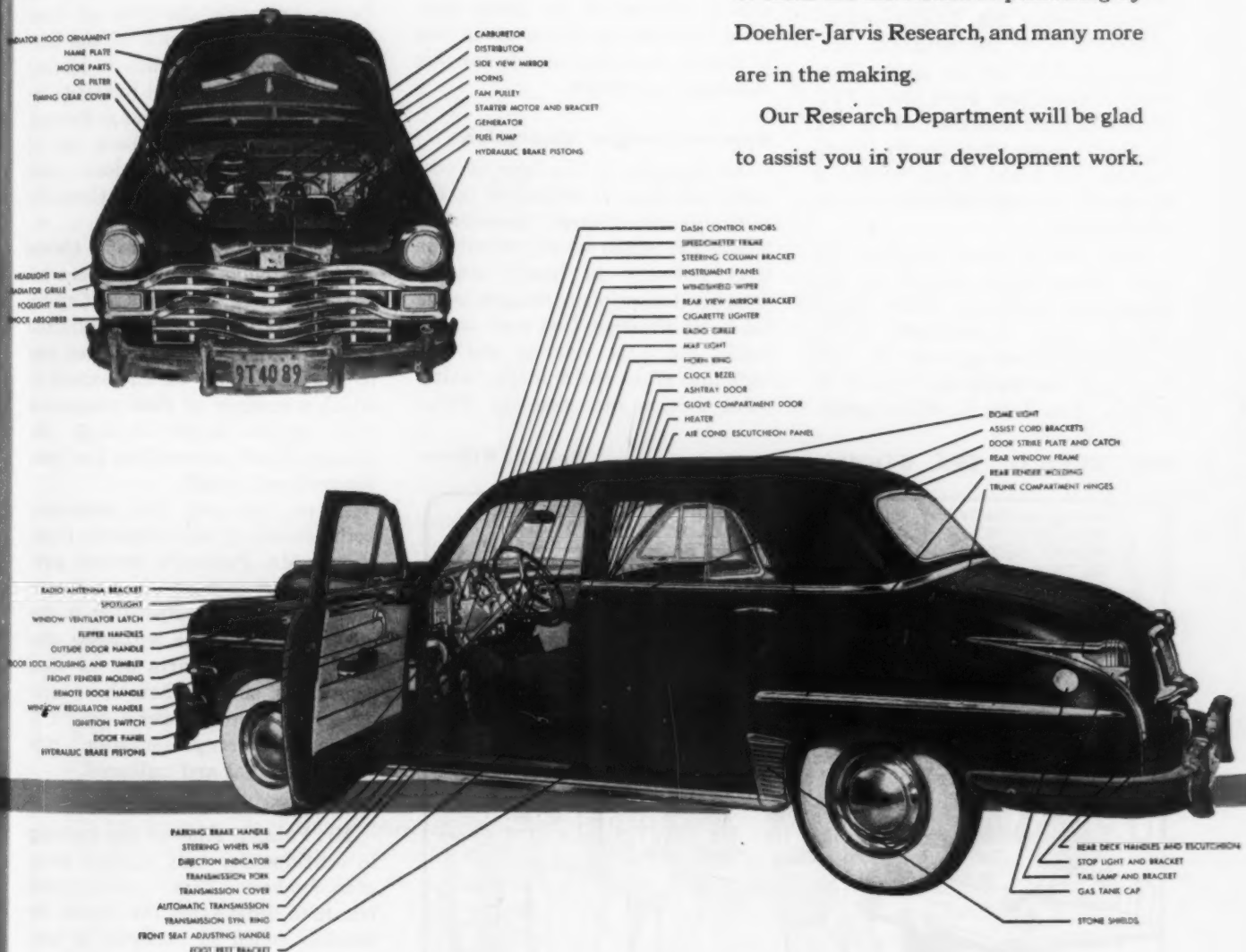


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committees which do not have the power to introduce legislation. The monolithic Temporary National Economic Committee, which was used by its chairman, also Sen. O'Mahoney, to begin his increasingly effervescent campaign against the steel industry is a prime illustration.

#### Techniques Remain the Same

Actually, there is not much new in the techniques of this current effort of Sen. O'Mahoney's. They date back to the TNEC. Even the characters are the same. Ted Kreps, Sen. O'Mahoney's chief steel adviser during the TNEC investigation is now the principal economic adviser to the Joint Economic Committee. John Blair, FTC economist and conceded to be one of the fuzziest thinkers in Washington, also found it was profitable to attack the steel industry during TNEC days.

The current report on steel has been conveniently leaked to the press well in advance of the actual release date. A summary of its recommendations appeared in THE IRON AGE two weeks ago (March 8, p. 48). Sen. Taft, R., Ohio, speak-

ing for himself and other Republican members of the committee, issued a blast at the socialistic proposals before the report was ready for release. His statement hit the front pages and for once Sen. O'Mahoney's usually good sense of public relations received a setback.

On the House side of Capitol Hill, there is another special non-legislative committee which has been carrying on a campaign against the steel industry. Equally irresponsible, this group is the House Small Business Committee headed by Rep. Patman, D., Texas. Mr. Patman is also a member of the Joint Economic Committee which gives him a second sounding-board for his anti-steel campaign.

#### Opposes Freight Absorption

An example of his type of economic thinking is contained in his campaign to prevent passage of legislation which would permit the steel industry to legally absorb freight. His primary weapon is the old horse chestnut that such action would not only legalize and put back into effect the multiple basing point system but also the Pitts-

burgh Plus system, which has been outlawed for a quarter of a century. Prior to House passage of S. 1008, which would legalize freight absorption, Rep. Walter, D., Pa., emphasized that "of all the hoary old canards that has been dragged out against this bill, none is more pernicious and disreputable than the one about the bill resurrecting the basing point system."

#### Backs Local Steel Monopoly

This isn't likely to have much effect on Mr. Patman, however, despite the fact that Mr. Walter is an Administration stalwart, for the Texan brags on the floor of Congress about how much of the taxpayer's money he spends in having his attacks on the steel industry inserted in the Congressional Record. Coincidentally, he has been one of the active backers of a local steel monopoly in his Texas Congressional District.

Mr. Patman's record of biased public hearings and subsequent reports is one of the worst on Capitol Hill. Just last week he conducted a brief hearing which he stated was to hear testimony on the extent to which a number of steel companies have grown larger through the years and how competition has been lessened as a result.

There were only two witnesses, both officials of the Commerce Dept. It was Mr. Patman's obvious purpose to demonstrate his pet theory that there is no competition in the steel industry. The witnesses presented detailed charts on 12 steel companies, showing how these companies have grown over a period of years. Their presentation was strictly factual and unbiased.

#### Gets Little Sympathy

Mr. Patman allowed the hearing to continue for only a little more than one hour. There is every good reason to believe that the reason the hearing ended so abruptly is that the Commerce Dept. officials did not play up to him and denounce the various steel companies for their growth and the varied activities.

Based on his past record and performance, a report will probably be forthcoming which will misuse the Commerce Dept. data so as to prove Mr. Patman's particular theories.

#### THE BULL OF THE WOODS

By J. R. Williams



# PAYS

## Profit Sharing

Profit sharing has been tossed about by management and kicked around by labor.

Outdated studies are still being quoted to show that it is unstable.

But many companies and their employees are very well satisfied with their profit sharing plans, many of which have been in existence for some years.

it is one way of reinforcing the capitalistic system.

By WALTER G. PATTON



Detroit Editor  
THE IRON AGE

WHEN he was exhorting industrial America to greater war efforts, the late Gen. William S. Knudsen used to say, "I want to get all the noses pointed in the same direction." During the war, the nation listened to Knudsen—and profited greatly by doing so!

Since World War II ended, Gen. Knudsen's advice has gone unheeded. For the most part, both U. S. labor and management have pointed their noses in opposite directions. Labor relations have sometimes taken on the aspects of civil war. While industrial teamwork has been urged by both management and labor, only a few firms and a few labor leaders have been willing to take the necessary steps—and make the necessary sacrifices—to build a strong, well coordinated industrial team.

This article is concerned with several firms

which have taken unusual steps to improve their labor relations. Many of these companies have introduced or extended existing profit-sharing plans. Others have promoted worker incentive by sharing with their hourly employees the savings in labor costs resulting from improved worker productivity.

These companies have several things in common: (1) They have worked with the labor organization which represents their workers; (2) each has ventured boldly into uncharted areas in the field of labor relations, and (3) they have been willing to share with their workers the company's prosperity and progress.

Both the failures and successes of profit-sharing will be considered. For present purposes, profit-sharing will include any formal plan under which the employee receives a





share, fixed in advance, of a company's earnings. Welfare and stock-sharing plans are not included. Each of the companies referred to pays its workers the going wage or a little better as a *minimum*. Payments over and above the base rate are computed on the basis of: (1) Profits earned during the calendar year, or (2) savings in labor cost resulting from high worker productivity.

Profit-sharing first appeared in the United States in the late 1860's and the 1870's. It has been estimated that there are over 20,000 profit-sharing plans of all kinds in existence today, including pensions and other programs not related directly to profits. Only a few hundred of these plans provide for sharing profits with all the workers.

However, the first successful plan, introduced in 1886 by Proctor & Gamble, Cincinnati, is still alive. The Eastman Kodak profit-sharing agreement was adopted in 1912. A successful Sears Roebuck plan, still in operation, was started in 1916.

During World War I, 75 profit-sharing plans were initiated. Following that war, management shifted the emphasis from profit-sharing to employee stock ownership. Most of the plans based on employee stock ownership were hastily abandoned during the depression. This gave profit-sharing a new lease on life. Some

33 plans were initiated between 1931 and 1936.

It is said that profit-sharing plans are unstable. A 1937 report of the National Industrial Conference Board covering 161 companies is still being quoted, although the Board published a 1948 report showing that out of 202 company plans, only 35, or 17 pct, were discontinued. (See Table I).

Profit-sharing has had to face a steady barrage of criticism from both labor and management. Organized labor has been consistently cautious or openly hostile. This antipathy stems in part from malpractice by a few companies.

Unions have also felt that in some plants the worker has little influence on profits which they claim are largely determined by the efficiency of management. Union leaders have objected to the uncertainty of profit-sharing. They have also contended that some profit-sharing plans are too paternalistic.

### Called Anti-Union Measure

However, the chief union argument is that profit-sharing is a threat to union security. To sustain this view, union members have charged that profit-sharing plans have sometimes been adopted to avoid unionization. Union officers claim profit-sharing lessens their importance in bargaining and aligns the workers with management.

But the *worker* attitude on profit-sharing is favorable, particularly where the plan is explained fully to the workers. In a survey made in 104 non-profit-sharing plants, 87 pct of the workers said they were in favor of profit-sharing. Only 13 pct were opposed.

### How To Begin Sharing With Your Employee

1. Study the variables—Past industrial relations, union relations, profit records, management objectives.
2. Get unanimity of opinion by key management on objectives of the plan.
3. Define precisely eligibility and coverage.
4. Determine amount of profit or labor savings to be shared and test against past experience.
5. Establish time and form of payments.
6. Consider profit sharing only as part of a well-integrated employee relations program.
7. Encourage cooperative formulation and free discussion of ideas.
8. Set up administration committee, including labor representatives with fully defined powers.
9. Be sure existing base wages and working conditions meet competitive standards.
10. Define auditing procedure.
11. After agreement with labor representatives publish complete details for all workers.
12. Compare your plan with other successful plans. Consult the Council of Profit-Sharing Industries, Akron, O., Joseph B. Meier, secretary.

TABLE I

## WHY SOME FAILED

Major Causes of Discontinuance of  
Profit Sharing Plans  
1937-1947

Reasons for Discontinuance	Companies		Deferred Distribution Plans	Current Distribution Plans
	No.	Pct		
1. Unfavorable employee reaction:				
Employee dissatisfaction or indifference.....	3	8.6		3
Employee preferred amount in pay envelope.....	2	5.7		2
Union attitudes.....	7	20.0		7
2. Company dissatisfaction:				
Believe other method of compensation better.....	3	8.6		3
Replaced by other benefits.....	2	5.7	1	1
3. Other causes:				
No profits or reduced profits.....	5	14.3		5
Wartime conditions.....	4	11.4		4
Government rules and regulations.....	5	14.3	1	4
Out of business or merger.....	2	5.7	2	
4. No explanation.....	2	5.7		2
Total.....	35	100.0	4	31

Source: National Industrial Conference Board.

To some executives, profit-sharing suggests unwarranted disposition of profits and foolish dissipation of essential working capital. In addition, sheer inertia has retarded acceptance of such plans.

Table II shows why some firms have adopted profit-sharing.

There are a number of strong appeals in profit-sharing for forward-looking management. Some see profit-sharing as the best available means of preserving the capitalistic system. Others say profit-sharing offers the best way of meeting the growing problem of employee security. Again, some managers feel this is the best method for providing real incentive for hourly-paid workers.

Many students of the subject agree that one of the anomalies of the American capitalistic ideology has been the exclusion of the working man from the profit incentive which has proved so attractive to top management. Profit-sharing, it is argued, offers today's best opportunity to put the profit system to work.

In 1947 General Electric Co. abandoned its profit-sharing program. Failure of the plan naturally received a great deal of publicity.

The pertinent facts about the GE program are these: In the first year or two, participation in the program was limited to employees with at least 5 years' service. The union insisted that the base be broadened. In addition, union negotiators consistently refused to consider profit-sharing and other benefits as a part of employee remuneration. The union demanded the same base wage increases that were agreed upon by other companies which did not have profit-sharing, pensions or other benefits.

It may be pointed out that average payments to GE employees under the profit-sharing agree-

ment averaged only \$17.64 in 1946. The small payments were a source of considerable employee dissatisfaction.

Similarly, Westinghouse Electric Corp. established a profit-sharing plan in 1936. It was abandoned in 1942—a war casualty. It provided for employee participation in profits exceeding \$600,000 per month. Each hourly-rated employee was to receive 1 pct of his wages for each additional \$60,000 earned. Provision was made to share both the losses and the profits. For each \$60,000 the profits fell under the base figure, 1 pct would be deducted from the employee's earnings. No such deductions were ever made. In ending the plan Westinghouse officials said that uncertainty about taxes and profit prospects, coupled with doubling of the number of the payroll, had led them to abandon it.

Today, tax considerations are an important reason for adopting a profit-sharing program. Since 1921 the Federal tax law has exempted company contributions from profit-sharing agreements. If the plan qualifies under the Internal Revenue Code the employer may deduct up to 15 pct of his total annual compensation paid to participating employees. He also has certain carry-over privileges from year to year. Further, under the Wages & Hour law, profit-sharing payments are not included in computing wage rates for overtime.

In addition, in trustee plans, the trust fund is tax-free on earnings from fund investments. Income to employees from the trust fund is taxable only when the employee receives payments from the trust. Deferred profit-sharing is, therefore, attractive to both employer and employee from a tax standpoint.

A booklet published by National City Bank in Cleveland illustrates the tax effects of a profit-sharing trust. Corporation A has an improved profit-sharing plan. Its payroll is \$300,000 and profits \$100,000. Under its plan a contribution to the trust fund calls for 15 pct of payroll for the year or \$45,000. Since this deductible \$45,000 comes off the 38 pct tax bracket in the corporation's income tax, it is reduced by \$17,-

TABLE II

## EIGHT GOOD REASONS

Why 182 Companies Adopted Profit Sharing

Purpose	No. of Companies	Percent
To improve morale.....	48	26.4
To reward extra effort.....	36	19.8
To increase efficiency.....	24	13.2
To promote systematic savings.....	23	12.6
Because of belief in principle.....	18	9.9
To reduce labor turnover.....	17	9.3
To adjust compensation.....	12	6.6
As preparation for transferring business to employees.....	4	2.2
Total.....	182	100.0

Source: National Industrial Conference Board.



Special Report

100. In effect, the corporation is paying only \$27,900 of the \$45,000.

Table III lists a number of U. S. metalworking plants operating under a profit-sharing plan. The list is far from complete but most of the plants omitted are small. The table shows that a wide variety of metalworking plants have already become interested in profit-sharing. It is expected the list will grow as a result of the present interest in pension plans.

To acquaint the reader with the potential benefits of profit- and -labor-savings sharing, two companies having such plans have been selected for analysis. Each is located in the Detroit area where UAW-CIO influence is strong. Both plants are organized. Daisy Mfg. Co., Plymouth, Mich., has an independent union; Bundy Tubing Co., has a UAW-CIO union.

For more than 60 years, the name "Daisy" has been synonymous with air rifles. During this period, the Daisy Mfg. Co. of Plymouth, Mich., has produced and sold more than 40 million toy guns.

Ten years ago Cass S. Hough, executive vice-president and grandson of the founder, introduced a profit-sharing plan for Daisy's 500 hourly employees. The plan was revised in 1946. In addition to regular wages equal to or better than good basic wages in the area, here's what the plan now gives to Daisy's hourly-paid workers and its salaried personnel.

### Why Profit-Sharing Plans Fail

1. No profits.
2. Failure to cultivate employee interest and participation.
3. No relationship between profit distribution and employee contribution.
4. Lack of employee understanding.
5. Union officials want same amount in the regular pay envelope.
6. Government interference and high taxes.
7. Change of management and mergers.
8. Failure to tailor the plan to a specific set of conditions.
9. Inherent distrust of management by labor.
10. Introduced at the wrong time.



Daisy's president, Charles H. Bennett, throws away the speech he didn't make at last December's profit sharing party. The month before, each employee who had worked full time got a semiannual profit check for \$214.95, plus a like amount credited to his retirement fund.

(1) If you go to work for Daisy Mfg. Co. at 30 and work there continuously for the next 35 years, it is estimated you will have coming to you from a trust fund at age 65 between \$20,000 and \$25,000. This is assuming the 1945-1948 profit rate is maintained. The employee is entitled to his full credit in the fund upon retirement at any time after ten years.

(2) Just before Christmas and during the week preceding the annual summer vacation in July, all Daisy employees receive checks based on profits for the preceding 6 months' operation. The half-year cash payment for November, 1949 was \$213.95 to employees who had worked full time. This is in addition to a lump sum payment (equal to all the cash payments)



TABLE III

## SOME METALWORKING PLANT PLANS

	Product	Type of Plan	Adopted	No. of Employees
J. D. Adams Mfg. Co., Indianapolis.....	Machinery	Deferred	1943	Under 1,000
Birdsboro Steel Foundry Co., Birdsboro, Pa.....	Machinery	Deferred	1944	Under 5,000
Brillien Iron Works, Brillien, Wis.....	Machinery	Deferred	1942	Under 1,000
A. B. Chance Co., Centerville, Mo.....	Machinery	Deferred	1939	Under 1,000
Chicago Metal Hose Co., Maywood, Ill.....	Metal hose	Deferred	1942	Under 1,000
Daisy Mfg. Co., Plymouth, Mich.....	Toy guns	Current and Deferred	1940	Under 1,000
Joe, Dixon Crucible Co., Jersey City, N. J.....	Graphite products	Wage-Dividends	1941	Under 5,000
Dominion Foundries & Steel, Ltd., Hamilton, Ont., Canada.....	Castings & finished steel	Deferred	1938	Under 2,500
Duff-Norton Mfg. Co., Pittsburgh, Pa.....	Lifting jacks and apparatus	Deferred	1945	Under 1,000
Elgin Watch Co., Elgin, Ill.....	Watchcase	Deferred	1941 to 1948	Under 5,000
Gertstenlager Co., Wooster, Ohio.....	Truck bodies	Cash	1946	Under 250
Heintz Mfg. Co., Philadelphia, Pa.....	Metal stampings	Wage-Dividend	1940	Under 5,000
Koehring Co., Milwaukee, Wis.....	Machinery	Deferred	1944	Under 5,000
Mathews Conveyor Co., Elwood City, Pa.....	Conveyor machinery	Deferred	1940	Under 1,000
Quality Casting Co., Orrville, Ohio.....	Gray iron and magnesium	Cash	1946	Under 125
W. A. Schaeffer Pen Co., Fort Madison, Ia.....	Pens and pencils	Cash	1943	Under 3,800
Thompson Products Co., Cleveland, Ohio.....	Auto and aircraft parts	Current	.....	Under 10,000
Vanadium Alloys Steel Co., Latrobe, Pa.....	Tools and tool steels	Current	1920	Under 1,000

Source: R. L. Lowe, *Harvard Business Review*, Sept. 1949, and Council of Profit Sharing Industries, Akron, Ohio.

that is credited to the employees in the retirement Trust Fund which now aggregates \$445,348.

(3) In addition to the semi-annual cash and retirement payments, all Daisy employees receive (1) up to 3 weeks' paid vacations; (2) life insurance ranging from \$500 to \$2000 paid for by the company; (3) a liberal hospitalization and surgical insurance plan covering the worker and his family paid for on a 50-50 basis by the employee and the company; (4) free services of a visiting nurse in case of illness in the worker's family. (There is no limit on the number of visits that may be requested by a physician), and (5) paid holidays.

The question may be asked, "Do employees respond to such a program by the employer?" Daisy employees certainly do. Despite the fact that new employees outnumbered experienced employees by nearly 9 to 1 when the Daisy plan was reopened following World War II, productivity is up 15 pct over the prewar figure. Scrapped material is down 20 pct. Employee turnover is nil and the company has a long list of people who want jobs. Meanwhile, although labor and material costs are double the prewar rate, prices of Daisy products are up only 40 pct. The first thing an employee tells you is, "Daisy is a good place to work." He feels he has a definite part in the organization and is part of a team. He agrees that the management will hear his gripe and if an agreement can't be reached a fair arbitration settlement will be made. No grievance has ever reached this stage of arbitration. Union officers admit that unsuccessful efforts have been made to bring the independent union into the UAW-CIO or AFL.

Cass Hough, who conceived and directs the Daisy employee relation plan, says it requires a new philosophy and approach to the management problem to bring in hourly workers as partners in the business. He mentions the following fundamentals as essential to successful operation of a profit-sharing plan:

(1) "Management prerogatives" and "boss complexes" must be abandoned by all the supervisory staff. This idea was emphatically "sold" to Daisy employees by agreeing to turn over to the workers 30 pct of all profits before taxes.

(2) Profit-sharing must never be used as even a partial substitute for wages. Any attempt to do so completely undermines the plan.

(3) The principle of industrial partnership must be accepted wholeheartedly and without reservation by all top executives, junior executives and supervisors if the plan is to be successful. It is a philosophy that must be believed in and lived.

## Labor Savings Sharing

There is another kind of sharing—labor savings sharing.

The Bundy Cost Savings Sharing Plan was adopted in 1946 at a time when labor costs had risen so high that the future existence of the fabrication division was at stake. The plan was put forward by management after labor repre-

TABLE IV

## BUNDY GETS RESULTS

Results of 3 Years' Operation of Cost Saving Sharing Plan

	Before CSS Plan	1st Year	2nd Year	3rd Year*
Absenteeism, pct.....	9.8	5.5	4.9	4.3
Scrap, pct.....	10.25	8.63	9.55	8.3
Grievances, hrs per mo.....	766	452	404	494
Productivity, tons per man per yr.....	12.22	17.47	18.32	17.50
Employee working full time:				
Yearly extra earnings.....	\$462.51	\$532.77	\$457.43	
Hourly extra earnings.....	23.34¢	26.74¢	22.70¢	
Average hourly rate:				
Straight time per hr.....	\$1.11	\$1.305	\$1.417	\$1.541
Average bonus per hr.....		.233	.257	.227
Total Compensation.....	\$1.11	\$1.538	\$1.684	\$1.768
Labor turnover, pct.....	3.66	2.26	.71	.63

\* Year ended March 31, 1948.

† Does not include overtime, night shift, vacation or holiday pay.

representatives failed to find an answer to the company's dilemma.

Under the plan, 50 pct of all reductions in production costs are allocated to company workers. The plan was developed in close cooperation with the local shop committee of the UAW-CIO and was approved by the International Union.

The ratio of labor cost to total value of goods sold is used in computing any available savings. Prior to adoption of the plan, wages averaged 30 pct of sales value of the products. Any savings are divided equally between labor and

exclusive of overtime, holidays, etc., has increased from \$1.11 before the plan was adopted to \$1.768 during the latest complete fiscal year ended March 31, 1949.

Since adoption of the plan, the total savings to the workers and the company have aggregated more than a million dollars a year, reaching a high of \$1,246,501 in 1948.

The lowest bonus payment was 13¢ per hr and the highest payment to hourly employees was 35¢ per hr. Since its adoption, Bundy workers have averaged about \$40 per month over and above the going rate for their jobs and Bundy's fabrication division has been converted into a profitable operation for the company.

The Bundy plan has no resemblance to a piece work plan. It does not pit one employee against another. There are no arbitrary or theoretical standards for the employee to compete against.



The Bundy scoreboard keeps employees posted on their monthly bonus. The bonus is paid every quarter but monthly standings are posted between the 10th and 15th of each month.

management. Extra earnings are paid quarterly, with each hourly employee participating on an equal basis according to the number of hours worked during the period.

During the first year of operation at Bundy, labor cost savings aggregated more than a million dollars. The 1300 employees got \$526,000; each employee working the full number of hours received \$462.51.

Bundy's experience with its Cost Savings Sharing plan is shown in Table IV. The record covers the 3-year period from Apr. 1, 1946 through Mar. 31, 1949. During this period, absenteeism has been reduced 50 pct; scrap is appreciably lower; productivity is up 50 pct; grievances are off nearly one-third; and hourly bonus payments have averaged about 24¢ per hr. Meanwhile, base rates have gone up substantially so that the average total hourly rate,

Managements seeking a democratic solution to the problem of better labor relations may find an answer in the sharing concept, whether this means a sharing of profits or a sharing of savings in labor costs.

Objective examination of the history of profit-sharing in this country permits the following conclusions to be drawn:

(1) Many failures to achieve improved productivity have resulted from failure to use profit-sharing programs that are wisely adapted to a company's particular needs.

(2) Where profit-sharing or labor savings plans have been fairly adopted, wisely administered and wholeheartedly accepted by both parties, stockholders, workers and the buying public have all benefited, sometimes to an extent not anticipated by even the most ardent enthusiasts for the new plan.

# Aircraft

## PUNCH and DIE Casting



By G. A. ROBINSON

Process Engineer,  
Northrop Aircraft, Inc.,  
Hawthorne, Calif.

Careful foundry control is required

to produce dies and punches that will accurately reproduce air-flow contours.

Analysis of the original metal and remelted material must be closely checked.

The utmost precaution is required

to prevent contamination and to hold shrinkage to a normal minimum.

**N**ORTHROP AIRCRAFT, INC., has its share of difficult foundry practices. Not only are the cast surfaces required to be smooth, but shrinkage must be controlled in order to accurately reproduce air-flow contours. Foundry control starts with composition of the alloys, which are purchased to the procurement standards shown in Table I.

Once the metals are placed in operations within the plant, the changing designs for experimental aircraft necessitate constant remelting and recasting into different shapes and sizes. After about 10 years of remelting and recasting, the contamination and depletion of the alloys become a problem. Only a few composition changes in sufficient amounts to cause trouble have been found. These are controlled by taking a chemical analysis of each melt and rejecting to the standards given in Table II.

When tests indicate the composition is outside the "A" analysis limits, but within the "B" limits, the process foundry engineer requires

that the dies or punches be marked with a green letter R. As soon as the defective castings have completed their productive requirements, they are rejected and sold to a salvage concern. If the laboratory tests indicate the composition to be outside the "B" limits, all castings from the heat are marked with the green letters RI. Such castings are rejected immediately and disposed of.

More than 0.25 pct Fe in the zinc alloy will produce a *Dural bug* structure and form iron-aluminum compounds which are insoluble in the melt. Hard spots appear on the working surface of the die which mar the sheet metal during forming operations. Some of the iron is removed in the dross as an iron-aluminum compound; however, the aluminum is gradually depleted, leaving excessive iron in the melt, and any loss of aluminum alloy below 3 pct causes a loss in fluidity and die strength.

Lead impurities over 0.15 pct in the zinc metal cause a decrease in die strength and stability.



Under normal composition limits the die compression strength is about 75,000 psi and the tensile strength 35,000 psi. With 0.5 pct lead and a year's aging, these strengths are decreased 1/3 and the die expands about 1/8 in. per ft. Under such conditions, the die does not fit the punch and a fracture can occur which may injure the forming operator.

After 10 years of foundry operations, the lead alloys are still satisfactory, and analysis checks are only taken on a few heats every 6 months to check the antimony content. A decrease in

ately removed in order to prevent contamination of the lead alloy.

One man on each shift is given the responsibility of removing all traces of lead from the surface of zinc alloy dies before they are remelted. All zinc alloy scrap metal is carefully checked to be certain that the proper alloy is being melted.

Both the lead and zinc alloy metals are melted and cast within a temperature range between 800° and 850°F. In order to prevent overheating of the metal, a cut-out control is set at 825°F. Any heating of the zinc alloy metal above 850°F causes the zinc to alloy with the iron kettle. Higher temperature pouring of either the lead or zinc alloys will cause rapid oxidation and excessive porosity, which weaken the structure and

TABLE I

PROCUREMENT STANDARDS

Zinc Alloy Die Metal

Percent		Percent Max						Zn, Pct
Cu	Al	Mg	Fe	Pb	Cd	Sn		
2.5-3.5	3.5-4.5	0.03-0.10	0.100	0.007	0.005	0.005	Remainder	

Lead Alloy Punch Metal

Sb	Percent Impurities	Pb
6-7	0.4 Max	Remainder

TABLE II

REJECTION STANDARDS

Zinc Alloy Die Metal

Impurity	A Pct Max	B Pct Max
Fe.....	0.25	0.50
Pb.....	0.15	0.35

Lead Alloy Punch Metal

Alloy	A, Pct	B, Pct
Sb.....	3-8	2-8

antimony below 3 pct will cause the tensile strength to drop below 5000 psi, and the elongation below 19 pct in 2 in.

Every precaution has been taken to prevent the metal from being contaminated. Responsibility is delegated to see that kettles and ladles are coated with a kettle coating once each month of service, to prevent the melts from being contaminated with iron. Iron fixtures released from punches during melting processes are immedi-

decrease normal shrinkage. Prolonged heating of the zinc alloy below 775°F causes segregation of copper-zinc compounds, which settle to the bottom of the kettle and result in a casting having low physical properties.

The process for starting a cold, empty kettle is as follows: (1) Kettle and thermocouples are coated and allowed to dry. (2) When molten metal is available from another pot, a heel about 6 to 12 in. deep is added to the kettle. The prac-

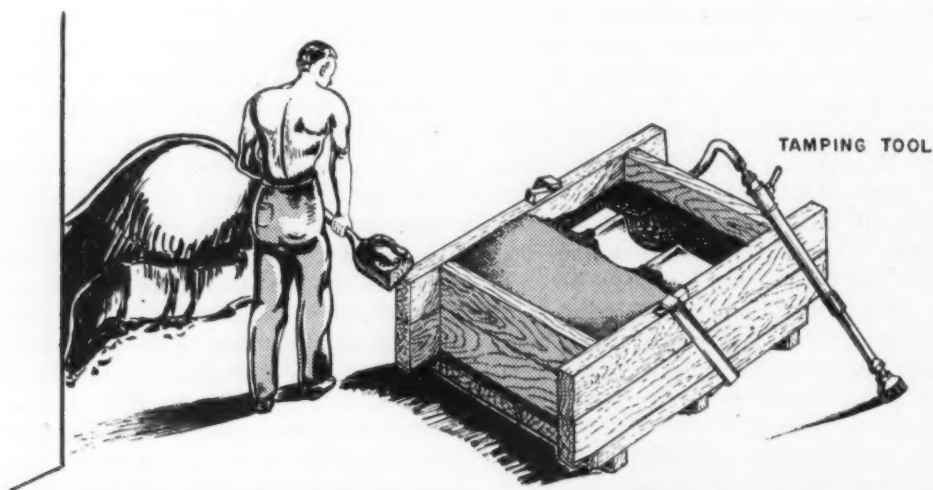


FIG. 1—Tamping molding sand over the plaster pattern in making a mold for a zinc punch.

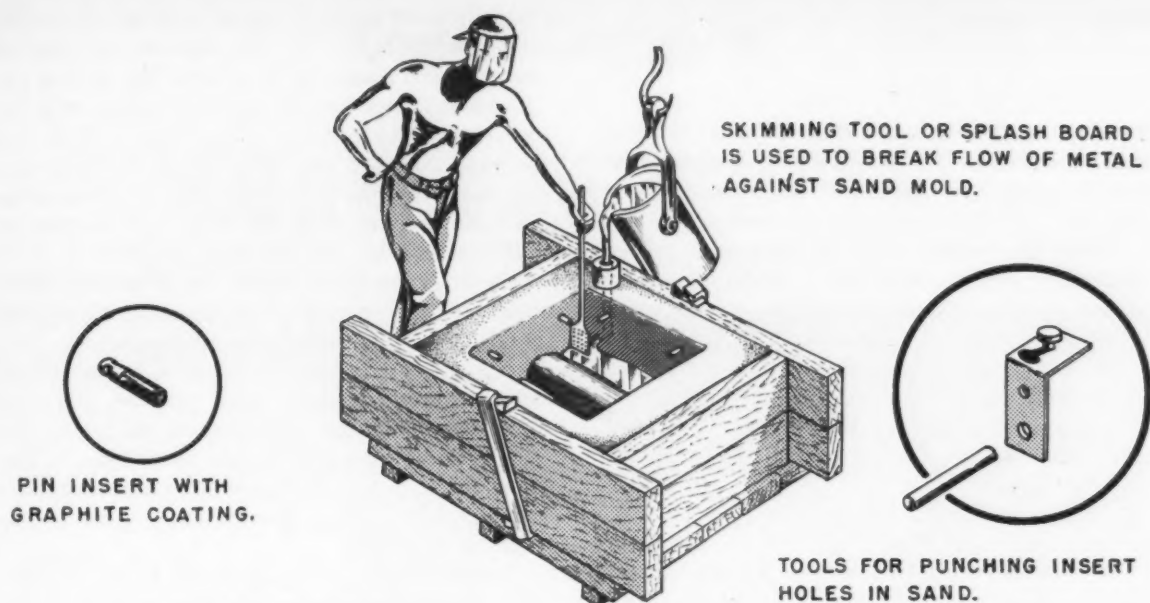


FIG. 2—Casting the zinc die. Dotted lines indicate pouring holes in the cone cast gate and sand.

tice when shutting down a kettle is to allow a heel to solidify around a ring hook and the heel removed by the lift. When the molten heel is not available, this solid heel is replaced in the kettle. If neither the molten nor solid heel is available, some pigs or small pieces of metal are placed in the bottom of the kettle. (3) Burners are turned on low adjustment and the kettle allowed to heat until the heel starts to melt. (4) Burners are then turned to full opening and the automatic controls take over the temperature regulation. (5) When the heel is completely molten, dies or new pigs to be melted are lowered into the heel.

Zinc and lead alloy metals are melted and allowed to simmer for 30 to 60 min, until dross collects on the surface. Dross is skimmed off and saved until a full kettle is obtained. Then it is remelted, fluxed, skimmed to remove impurities, and the good metal is reused. The final skimmings are disposed of.

The fluxing operations are as follows: (1) About 1 lb of Foseco Zinc Coveral flux is added for each 1000 lb of zinc metal and 1 lb of Lead Regenerator for each 2000 lb of lead metal; (2) fluxing is accomplished by pouring off  $\frac{3}{4}$  ladle of molten metal, adding flux to ladle, and pouring back into the melt; (3) melt is allowed to simmer from 15 to 30 min and the dross skimmed from the surface.

The plant process consists of casting the zinc punch first. This is accomplished by constructing a plaster pattern, using a  $\frac{1}{8}$  in. shrink scale and one or more patterns placed upright on a platform inside a wooden flask. Patterns must clear the side walls of the flask by at least 3 in. to develop side wall sand support for the mold. A fine powder is dusted over the surface of the patterns followed by a layer of sifted sand. The molding sand is uniformly dampened to a moisture content between 4 and 6 pct, or until the sand compacts readily when mashed by hand.

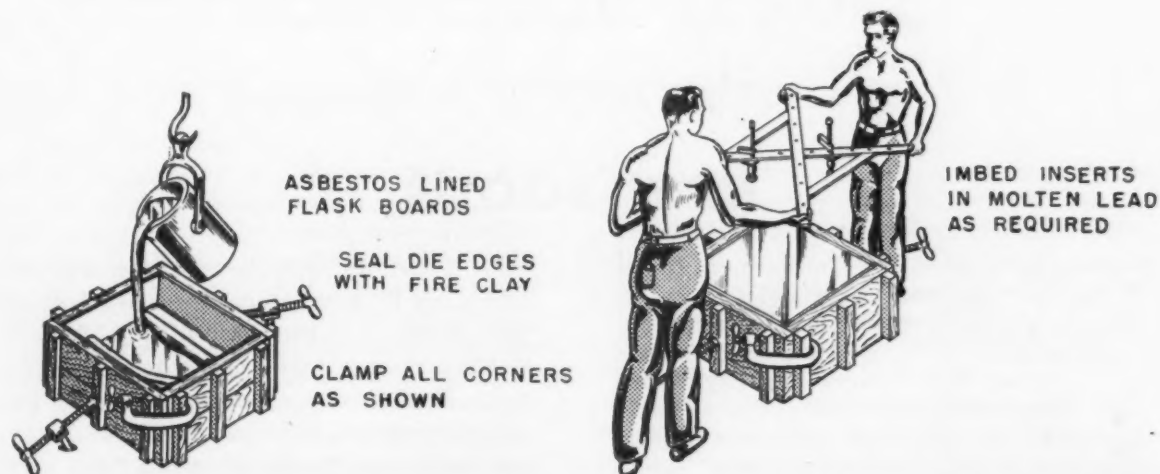


FIG. 3—Casting the lead punch. An iron bolt holder is embedded in the molten lead to help attach punch to the platen.

Then the sand is added in steps about 12 in. deep around and over the pattern and tamped with rubber-tipped air hammers, as illustrated in Fig. 1.

Flasks are turned over, the pattern is rapped lightly and removed vertically. When necessary, broken places are repaired and loose sand is removed by suction. A cone cast gate is attached to a bottom feed where a splash board is provided at the start of the pour. Knock out pins coated with graphite are added which, when removed, leave holes in the casting for lifting bolts, as shown in Fig. 2.

Standard practice is to cast lead alloy punches onto the zinc alloy dies. Zinc dies are boxed in with asbestos-coated wood side boards, and a thick mixture of water and fire clay used to seal all openings and prevent run-out. The contact surfaces of the dies are spray-coated with a thin mixture of water and fine fire clay. The surface is dried and preheated between 300° and 400°F before pouring the lead alloy punch metal. Iron bolt holders are cast into the bottom of the lead punch (see Fig. 3) to aid in attaching to the platen.

Portable ladles are coated once each month. Before adding molten metal for pouring, the ladles are preheated for 30 min, or until their temperature is about 500°F. The molten zinc alloy die metal is poured into the mold in a stream about 1 in. in diam. Lead alloy punch metal is poured in a stream about 2 in. in diam, and quickly distributed over the surface of the zinc die to start shrinkage uniformly over the entire surface. These pouring rates are important to prevent cold shuts, folds, and insure uniform shrinkage and freedom from distortion. Once the pouring is started, the entire casting is poured. When a bottom surface plainer is not in operation, some space is left for pouring a 1- to 2-in. deep leveling cap.

Asbestos covers are placed over the casting

directly after pouring, and as soon as the casting cools to about 500°F, the asbestos is removed and the shrinkage cavity or level cap poured full of metal. The bottom cap is blended into the other metal by heating with a torch. This step is important for zinc dies, where leveling caps are used, in order to prevent edge cavities where lead may collect from the platen blocks used to hold the punches in operating position.

Castings are cooled below 400°F before removing from their molds. This practice, along with careful handling, helps prevent breakage.

A foundry data sheet is compiled by the molder which states the date, heat number, and part numbers of castings poured from the melt. The molder removes a test sample  $\frac{1}{2} \times 2 \times 2$  in. in size from the heel of each melt poured and routes the samples and the data sheet to the process laboratory for analysis.

Dies and punches are identified by the finisher and checker who stamps the date finished, model, serial, heat, part, and storage zone numbers.

Zinc alloy heats are identified by letters A to O inclusive, and numbers 1 to 99 inclusive for each letter. For example: A1, A2, A99; then B1, B2, B99. Lead alloy heats are identified by letters P to Z, and numbers 1 to 99 inclusive for each letter.

The procedures that were set up at Northrop have prevented die breakage under operating conditions, and there is little trouble with surface roughness. Trouble in producing the punches to the accurate contours required is sometimes encountered. A blue block method indicates the positions where the dies are out of tolerance, and disk emery grinders are used to remove the surplus metal.

Generally, supervision remedies the condition somewhat by clamping down on pattern construction and foundry molding and casting technique. However, in a few designs the pattern-maker finds it almost impossible to accurately estimate just how the zinc alloy die metal will shrink. There are pattern designs where the regular scale is used, because the ordinary metal shrinkage has little effect on the final dimensions.

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## NEW BOOKS

*"Engineering Papers of Hydraulic Institute, Volume II."* The volume contains 4 papers on subjects pertaining to pumps. Discussions include cavitation in centrifugal pumps, the centrifugal pump in the process industry, operation of centrifugal boiler feed pumps, and submergence for centrifugal condensate pumps. Hydraulic Institute, 90 West St., New York 6. \$2.00.

*"ASTM Standards, 1949, Part 2."* The 1949 edition of the Book of Standards comprises about 8300 pages, so it was decided to publish the material in six separate volumes to avoid bulkiness. Part 2 contains all standards for the nonferrous metals, including tentatives. American Society for Testing Materials, 1916 Race St., Philadelphia 3. Price upon request. 1140 p.



# Central Control of CONVEYOR DRIVES

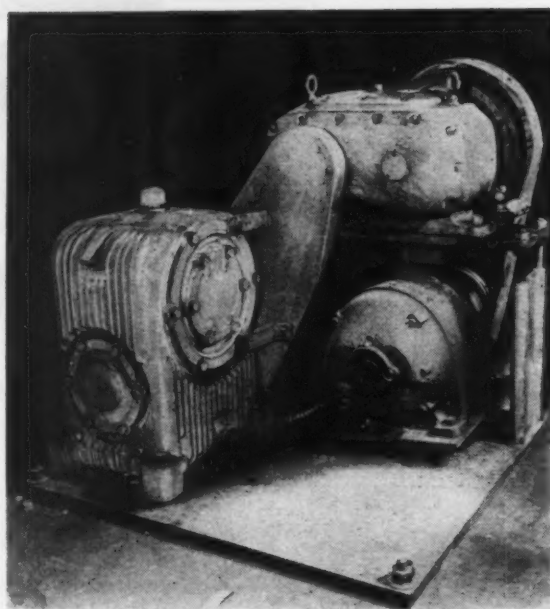
**C**ENTRALIZED control of conveyer drives plus a simple method of custom-assembling compact conveyer drives from standardized components has been worked out by David E. Kennedy, Inc., Brooklyn, N. Y., manufacturers of "Ken-Tile" and other asphalt products. The conveyer drives are made up essentially of a standard electric motor, a vari-drive to provide variability of conveyer speed and a standard Cone-Drive speed reducer.

Control of the vari-drives is electrical, operated from a central control point. Ready variation is possible of conveyer speeds while synchronization of all conveyer speeds can be maintained simultaneously.

Use of standard Cone-Drive reducers, manufactured by Cone-Drive Gears, a division of Michigan Tool Co., Detroit, gives Kennedy compactness for the drive since smaller gearing can be used for the same or even greater load carrying capacity.

Vari-drive and reducer are mounted together with the motor on a single-base plate, as shown in the accompanying illustration, the motor mounting being adjustable on a hinged plate to facilitate interchange of belts or motors.

With this design and the compactness of the reducers, only a single and relatively small base-plate proved necessary. On this base three sizes of conveyer drives are currently mounted interchangeably, these drives having a rating



This simple method of assembling standard parts makes a compact custom-designed conveyor drive. This base plate can be fitted with either of three drives. The motor is mounted on a hinged plate to make belt or motor changing easy.

of 1, 3 and 5 hp, respectively. Illustrated is the 5 hp drive with a 60:1 Cone-Drive reducer with 6 in. center distance.

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## PRODUCTION BENDER

### Boosts Output 250 Pct

**U**SE of a production bending machine has enabled a plumbing fixture manufacturer to increase production of tubular drain traps by 250 pct. The job is to make two 180° bends in 1½-in. diam brass tubing having wall thickness of 0.032 in. The stock is first precut to a length suitable for two finished traps and then loaded onto the machine. One bend is made, the stock is repositioned, and the second bend is made. When cut apart each length yields two traps. Use of this production bending machine has made possible the manufacture of between

400 to 500 bends per hr as compared with 175 with the previous installation.

The bending machine, produced by Pines Engineering Co., Aurora, Ill., is adaptable not only to round tubing and bars, but also to rectangular and square stock, and rolled or extruded sections. It can be set up to make serpentine, stacked, coil, compound, and multiple bends.

The construction features include a heavy cast-steel nose, and alloy steel spindle, adjustable gibs, and heavy duty bearings. Its hydraulic controls are panel mounted.



## ADOPTS AUTOMATIC TRANSMISSION



By **THOMAS E. LLOYD**  
*Machinery Editor,  
THE IRON AGE*

In the Chevrolet automatic transmission, the assembly of the pressed metal converter components, welding and brazing, and inspection are close tolerance operations. This is the second of a two-part article describing Chevrolet-Flint operations on the new transmission. Production of other parts in the transmission and machining operations will be described in a later issue.

**T**HE various stamped parts of all major components move toward a series of sub-assembly stations. For all of these subassembly operations, special assembling fixtures have been developed that position and hold the vanes in their proper relation to the shells to which they must be joined. Typical of these fixtures are those used in the assembly of the turbine, and the secondary pump shown in Fig. 9. These steel fixtures are machined to very close tolerances. Vanes are placed in slots around the periphery of the fixture and the shells are located in position in the fixture. A key-slotted nut arrangement that screws onto the center post of the fixture, holds the vanes and the shell. After loading, these fixture-part assemblies are placed on a conveyer and transferred to the welders.

Because of the extreme accuracy required in the finished assemblies, the fixtures must accurately and positively locate the vanes in the

shells. The slotting arrangement around the periphery of the fixture tilts the vanes at the proper angle to the shell. In tightening the fixture the vanes are held at the proper angle.

A hand-loaded fixture is used on all five major assemblies. However, in the production of the hydraulic coupling for both the primary pump and the turbine, a five-station rotary indexing table arrangement is used. A hopper feed, shown in Fig. 10, rotates counter-clockwise and picks up the vanes on machined steel rods. As the hopper rotates the vanes are carried to a wire brush that peels them off into a delivery tube. Fig. 11 shows the position of the hopper with the tube coming down to the loading station. At the bottom of the tube is an automatic loader that inserts the vanes, one at a time, into the special fixture holding the bottom ring of the hydraulic coupling inner shell. When all the vanes are installed, the table indexes counter-clockwise to the first staking press, which stakes the bottom



FIG. 9 — Converter components are assembled in special fixtures. Above is the assembly fixture for the turbine and to the right is the fixture for assembly of the secondary pump.



tongue of the vanes into the shell. At the next station the operator, facing the camera, removes the portion of the fixture that holds the vanes and places the outer shell in position.

On the next index, the tops of the vanes are staked to the outer shell. The operator in the foreground unloads the indexed station and installs a new inner shell and a vane positioning fixture, and the cycle is repeated.

#### Spot Welding Is Intricate

The five major parts of the torque converter assembly are spotwelded prior to brazing. After the vanes and shells have been positioned in the assembly fixtures such as shown in Fig. 9 they are placed on transfer tables, shown in Fig. 12, for delivery to spotwelding machines.

The fixture and assembled units are removed from the conveyor and placed in the welders where the vanes are spotwelded to the shells. In the case of the primary pump subassemblies,

there are three welds in each vane.

The first welder used to make the initial weld around the periphery of the primary pump inner shell, one weld at each vane position, is a multiple 30 kva, total 120 kva, transformer welding machine. The loaded fixtures are placed in the machine in a cradle designed to receive them and the cradle moves forward and vertically upward into welding position. Eight spotwelding heads drop into position radially around the assembly, make the welds in the tops of the vanes, and then retract. The fixture then indexes one position and the cycle is repeated until every vane has been welded to the shell. The same procedure is duplicated in a second welding machine, but in this case two welds are made in each vane, attaching them securely to the inner shell. Fourteen welding guns drop into position to make the second series of welds in each vane, Fig. 13. The fixture indexes four times after the first positioning.



Similar operations using multiple spotwelding equipment are performed on the various other vane-shell subassemblies, as shown in Fig. 14. Following spotwelding, the parts are inspected to make certain each vane is in proper position and any necessary repairs are made.

As the welded assembly is removed from the fixtures, the fixtures are placed on the power driven table-top conveyer, shown in Fig. 12 and returned to the loading station. The parts are carried by conveyer to the brazing furnaces.

### Brazing

All converter assemblies, including the primary pump, secondary pump, the primary and secondary stators, and the turbine, are brazed in Lindberg roller hearth Endothermic furnaces. Two

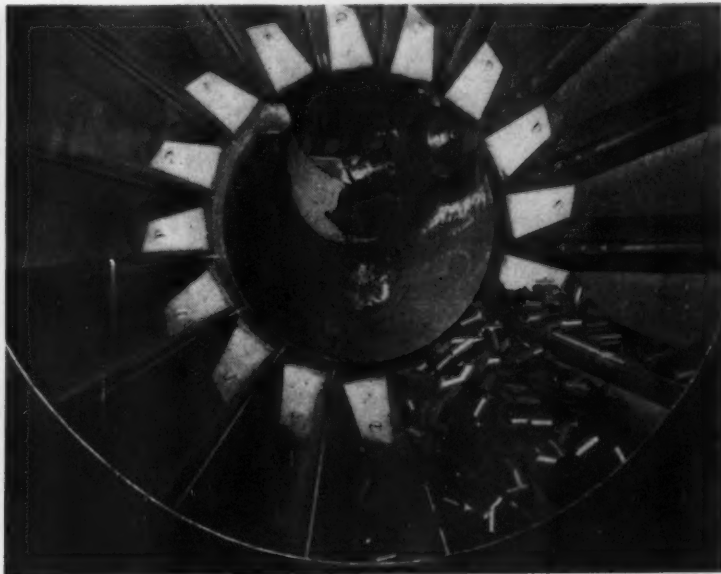


FIG. 10—This hopper feed picks up vanes on steel rods and carries them to the wire brush that peels them off into a delivery tube for assembly of the overrun coupling.

furnaces are used in brazing. The two brazing furnaces are similar in design to the annealing furnace. They are 184 ft long door to door, with four 10-ft heat zones. Brazing is at 2050°F.

Parts are loaded, after being dipped or sprayed with the brazing compound, on nickel alloy fixtures with six carbon rest points. The furnaces have a rated net pay-load capacity of 2280 lb. per hr, plus the weight of the trays and fixtures. The total input for the brazing furnaces is 700 kw and heated by Globar units similar to those used for annealing. They are designed for operation up to 2500°F, the extra rating being necessary because of the fact that the brazing paste gives

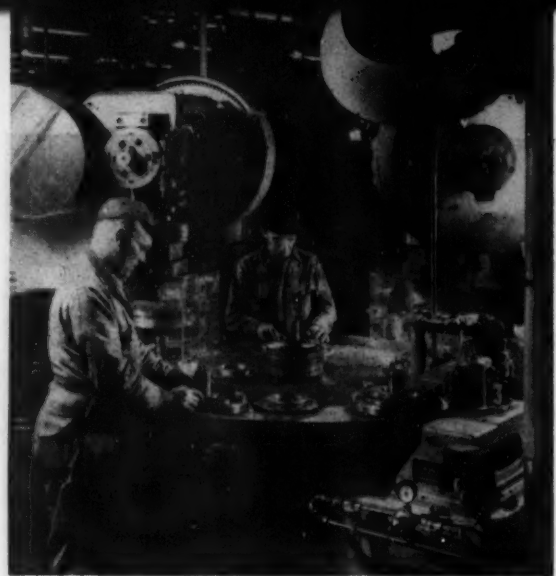
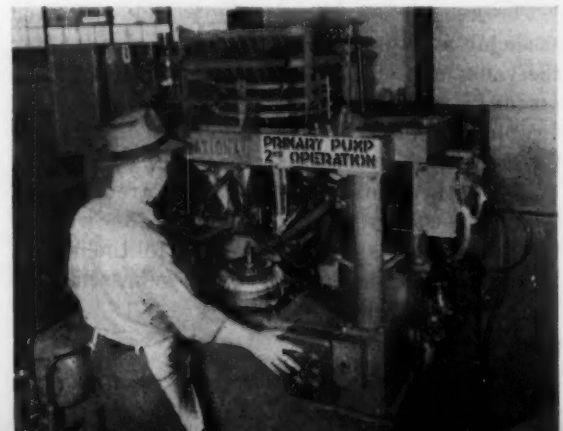


FIG. 11—This five station indexing table has a hopper loading station, a press station for staking the bottom of the vane, a part reversing station, a press station for staking the top of the vane, and a station for fixture loading and unloading.



FIG. 12—After fixture-assembling main converter parts, they are transferred to spotwelding machines on this table-top transfer table.

FIG. 13—Two spotwelding operations are performed on the pump assembly, making three spotwelds in each vane. Shown here is the second welding operation setup.



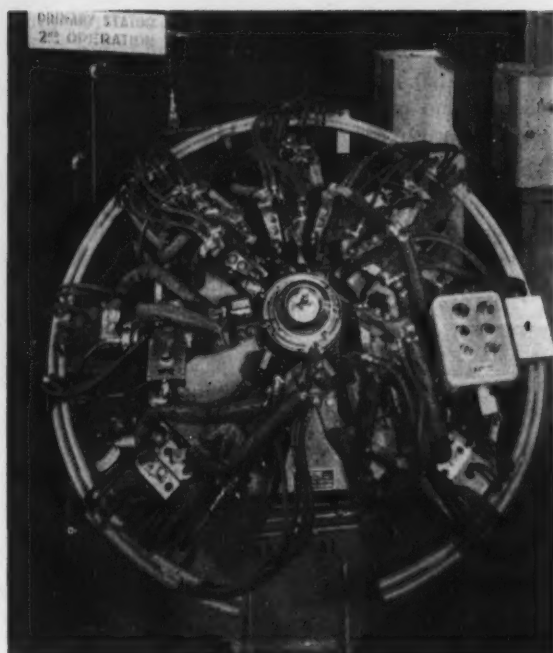


FIG. 14 — This is the arrangement used in welding the vanes of the primary stator to the shells.

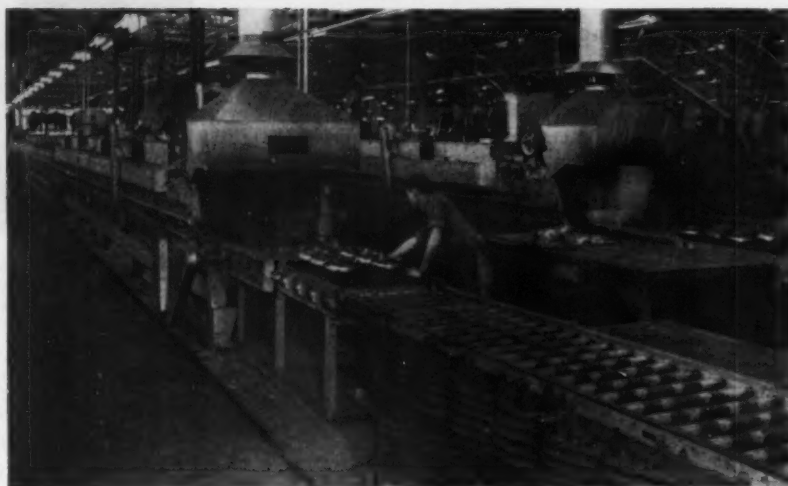


FIG. 15 — Entering the brazing furnace, assemblies are placed bottom side up to assure drainage of the molten copper from the intricate shell and vane slots.

FIG. 16—Mechanical fit gaging is primarily the method of gaging assembled parts. In these gages, the pins along the outside of the gage should touch the vanes. Feeler gages are used to check this positioning.



off carbon into the atmosphere. Safety precautions are the same as described for annealing.

Brazing material used in the final assembly of the vane and shell components into the major units of the converter is propylene glycol to which copper powder is added and held in suspension. The proportion of the liquid to the powder is regulated to suit requirements of the parts.

The welded primary pump subassembly is then pressed into the main shell and must fit accurately. The term *glove fit* is used in the shop for a satisfactory fitting of the various subassemblies in the main shells. Vanes fit closely to each shell with practically zero clearance. This assures proper fusion in brazing. The hydraulic coupling subassemblies are also pressed to a *glove fit* into the inner shell of the pump. The hub flanges are then located in position and a welding flange is pressed on the outside diameter of the pump.

After application of the brazing solution, the assembly is then placed on the fixture and so located that the outer shell and all parts within

it are held in contact by their own weight as they pass through the brazing furnace. Entering the furnace, shown in Fig. 15, the assemblies are placed bottom side up. This assures better draining of the molten copper from the intricate shell and vane slots. Before entering the furnace, a copper wire ring is placed around the base of the shell to assure brazing of the outer flange to the pump shell. The technique is the same for the secondary pump, primary and secondary stators, and turbine assemblies. The pump and turbine assemblies are restruck after brazing to correct any distortion resulting from brazing.

#### Material Handling

The conveyance of material and parts of the converter to the various operations is one of the primary factors in the economical production of the converter and in the high quality of the product. Chain, table top, and roller feed tables as well as tote boxes and lift trucks are used.

All stampings are small and light. This includes shells and vanes. Shells ejected from the press, both in original forming and blanking and in restriking, are loaded in tote boxes by hand and separated by plastic rings to prevent sticking. Vanes used in the converter are formed in progressive die setups and drop out of the press into tote boxes. These tote boxes are picked up and carried to other stations by lift trucks.

The chain and roller conveyer setups are used primarily to feed the annealing furnace and the two brazing furnaces. The roller driven lines carry trays of stacked parts and trays of vanes into the annealing furnace. Similar lines are used to carry the subassemblies and assemblies into the brazing furnaces. Inconel trays are used in the brazing furnaces. Typical handling systems are shown in the individual process illustrations throughout the discussion.

### Inspection Is Rigid

Inspection fixtures for the various components of the torque converters produced at Flint must measure the parts accurately. They must also be easy to use and durable. The fixtures developed meet these requirements fully. The gaging equipment used is, for the most part, mechanical fit rather than air, electrical, or electronic gaging. Typical of such gages or inspection fixtures are those used for checking the primary pump inner shell vanes after spotwelding; the primary pump after brazing; and for final inspection of the converter housing after restrike and welding the drain hole plugs.

After spotwelding the vanes to the primary pump inner shell, the subassemblies are placed in fixtures shown in Fig. 16. The fixtures are machined to extremely close tolerances with the same care and precision as is used in constructing dies for stamping and drawing operations. Along the periphery of the fixture are four pins. When properly positioned these pins touch four different vanes. Feeler gages are used to check the positioning of the pins against the vanes.

A very elaborate pin gage designed to check three dimensions on the primary pump after brazing is shown in Fig. 17. The three concentric rings of feeler pins, extending downward from the lid of the gage, are used to measure the height of the vane at the top, the vane height at the bottom, and the dimensional depth of the hub.

The primary pump, after complete assembly and brazing, is placed in position, as shown in the lower part of the gage. This part is made to receive and position the assembly so that when the top is positioned on the center spindle and dropped into place, the pins are all accurately positioned for checking the necessary points.

Around the center hole of the top are three pins that fit into holes in the bottom of the pump shell, checking the hub depth. There are six of these holes in the pump shell, four of which can be seen in the illustration. By indexing the fixture once the three pins check the hub at six points.

Immediately behind these three pins is a concentric row of 31 pins that drop into position on the bottom edge of each vane. Beyond this row



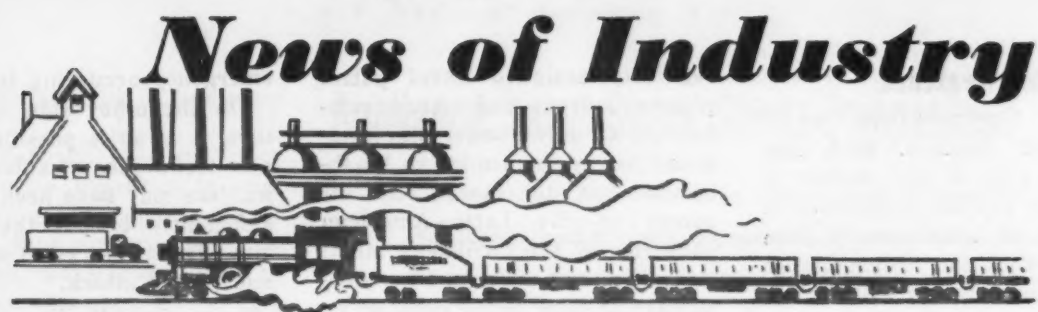
FIG. 17—This special pin gage checks the dimension depth of the hub, the vane height at the top and the vane height at the bottom.

of pins is another row. These pins drop into position on the top edge of each vane.

When the top of the fixture is in place, the tops of the pins show through the top of the lid, within the view and reach of the inspector. By sliding his finger over the top of each pin, the inspector can tell whether or not the individual vanes and the hub are in proper position. If the part being tested is not high enough, the pins drop below the surface of the fixture. One or two thousandths is easily felt by the inspector.

First, the drain holes, shown on either side of the housing in the fixture, are hydraulically tested at 500 psi. Then, in the fixture shown, the outside and inside diameters and parallelism of the sides with the base are checked. The housing is a critical part from the standpoint of tolerances. To assure the required accuracy, special stock 0.1793 in. thick, held in rolling to  $\pm 0.005$  in., is purchased. The accuracies in dimension are shown in Fig. 5. In checking the inside and outside diameters and parallelism with the base, a tolerance of 0.010 in. total indicator reading is allowed. Other gages, shown in the background, make six more dimensional checks on the housing. These gages are typical of all the gaging done on the converter assembly.





### Railroad 'Rithmetic

Baltimore—A unique twist in the business of benevolent publicity campaigning is the Baltimore & Ohio Railroad Co.'s two volume arithmetic course for students in elementary and secondary schools. Entitled "Railroad 'Rithmetic," the books furnish practical problems for teachers to use in illustrating arithmetic principles.

Incidentally, the problems involve railroads and their operation. The books are amply illustrated with charts and diagrams and are aimed at snaring "the natural interest children have in railroads and trains."

### U.S. Steel Export Head Lists Ways to Better Foreign Economy

Pittsburgh—A stable European economy and a sound world trade depends on four interlocking factors, George W. Wolf, president of the U. S. Steel Export Co., told the recent fourth annual World Trade Conference of the World Trade Council.

Mr. Wolf suggested increased foreign investment by private capital here; increased tourist trade; stockpiling of essential raw materials in America; and free access of all nations to available raw materials.

### Blaw-Knox Plans Chemical Plant

Pittsburgh—The Chemical Plants Div. of the Blaw-Knox Co. has been authorized to build chlorine and caustic soda plants using the Mathieson stationary mercury cell technique.

## U. S.—Caribbean Supply Lines Weakened

**New military plans would weaken U. S. bases in the Caribbean . . . Our supply of Venezuelan iron ore and Surinam bauxite might be cut off.**—By JOHN ANTHONY

New York — Strategic supply lines from the Caribbean to the United States, essential to our supply of iron ore and bauxite, may be imperiled when current military plans go into effect. The plans call for a reduction of naval and air strength in the Caribbean.

During the last war the U. S. used steel almost entirely from the high grade iron ore reserves of the Mesabi Range. High grade reserves are running out and the steel industry has laid plans for the large scale use of foreign ores. These ores will come principally from the rich reserves of Venezuela and Labrador. Bethlehem Steel Corp. will bring in Venezuelan ore this year. U. S. Steel Corp. expects to start shipping ore from its rich new holdings there in about 5 years. Shipments from Labrador cannot be expected to start in less than 5 years.

#### Foreign Bauxite Needed

The domestic aluminum industry has always been heavily dependent on foreign bauxite. Imports in 1949 were more than twice as large as domestic bauxite production. The principal supply for the United States comes from Surinam (Netherlands Guiana). Imports of Surinam ore in 1949 totaled 1,821,963 long tons. We took, in addition, 86,763 tons from

British Guiana. The bulk of the British Guiana bauxite goes to support the Canadian aluminum industry. Shipments to Canada in 1949 were 1,540,272 long tons, plus an additional 21,569 long tons from Surinam.

Only during the war did domestic production of bauxite exceed U. S. imports from the Caribbean. This was due to a tremendous increase in the output of Arkansas, coupled with a significant reduction of ocean shipments due to the hazards of the Caribbean. However, the high grade bauxite ores of Arkansas are running out, and the life of the reserves depends on beneficiation with high grade imported ores.

The newest important source of bauxite is also located in the Caribbean. Reynolds Metals Co. has started to develop the rich bauxite

*Turn to Page 80*

### RFC Loans Given House Builders

Washington—On the heels of stopping further loans to the Lustron Corp. and firing half its personnel, the Reconstruction Finance Corp. recently granted two loans of \$3 million to two prefabricated house builders. They are the Best Built Co., of Chicago, \$2 million, and the Lumber Fabricators, Inc., of Detroit, \$1.1 million.

## Supply Lines Weakened

*Continued from Page 79*

reserves of Jamaica. ECA has granted a loan of \$11 million to finance the project, repayable in shipments of aluminum to the strategic stockpile. Shipments of bauxite from Jamaica will not begin for at least 2 years.

### Must Protect Supply Lines

Although bauxite and aluminum are being stockpiled, the need for adequate protection for these strategic supply lines remains very great. More than 100 bauxite carrying vessels were sunk in the Caribbean by enemy submarines in 1942 and 1943 alone. At least 13 iron ore carrying vessels from S. America were lost due to wartime enemy action. The new type of long range snorkel-equipped submarines could possibly inflict even greater damage.

But naval sea and air activities in the Caribbean are being greatly reduced. The Navy estimates that about \$9.7 million will be saved annually by reduced operations in the Caribbean. By summer, virtually all naval operating forces in the Caribbean will be shifted to the continental United States or deactivated. The naval stations at San Juan, P. R. and Guantanamo, Cuba, will be virtually the only active bases in the Caribbean.

### Air Force Reduces Operations

Roosevelt Roads, the naval air strip and drydock on Puerto Rico, and Coco Sola, the naval air base in the Canal Zone are being reduced to a partial maintenance basis on June 30. The Navy says that partial maintenance means that the facilities can be reactivated on short notice. The naval air facilities on Trinidad will be put on partial maintenance on May 15.

The Air Force is also reducing its operations in the Caribbean. The only active operations in the area will soon be Albrook Base in the Canal Zone, and Ramey Base in Puerto Rico. The Air Force base at Trinidad will soon be reduced to a partial maintenance basis.

The commander of the Caribbean Sea Frontier, without any

regularly assigned naval patrol plane squadrons, and without combat naval units under his command has recommended to Washington that the naval and air forces of the Latin-American countries of the Caribbean might be trained and organized for anti-submarine work in the event of an

emergency occurring in the area.

On the other side of the picture, it is quite possible that the new techniques of anti-submarine warfare may have been developed sufficiently to put them quickly into effect in the event of a sudden unexpected attack.

*Resume Your Reading on Page 79*

## Electrolytic Tinplate Overhauls Hot Dip

**Electrolytic tin plate production accounts for more than half of all coated tin mill tonnage in 1949 . . . Producers installing new equipment to meet demand.**

**Pittsburgh**—For the first time in history, electrolytic tin plate production last year accounted for better than half of all coated tin mill tonnage, and it is not unlikely that electrolytic this year will make further gains over the hot dipped product.

American Iron & Steel Institute statistics indicate that electrolytic production in 1949 accounted for 54 pct of the total coated tonnage, as compared with 49 pct in 1948.

It is estimated that electrolytic tin plate production in 1949 was 1,990,000 tons or approximately 44,000,000 base boxes. Actually, the industry might have produced

around 2,240,000 tons or approximately 49,000,000 base boxes had it not been for the steel strike in the fourth quarter.

This provides a striking contrast to 1942, first year that official electrolytic figures were reported by the institute, when only 82,426 tons of a total of 2,727,079 tons of tin plate and terne plate produced were coated electrolytically.

### Weirton Installs New Line

It is possible that electrolytic production this year will be around 60 million base boxes.

Will the industry be able to meet 1950 demand for electrolytic? Some producers have, or soon will, install new equipment, and one mill has, to a limited extent, speeded up existing installations.

Weirton Steel Co. has installed a fast new electrolytic line rated at 5 million base boxes annually; another Pittsburgh district producer, Jones & Laughlin Steel Corp., has stepped up production of its lines at Aliquippa, and a Midwest producer is expected to bring a new line into production this year.

Wheeling Steel Corp. announced that it will install a new electrolytic line at its Yorkville works, with work getting underway soon. The new unit, to cost between \$3 million and \$4 million, is expected to be in production early next year. Bethlehem has already announced plans for expanding its



"I have a complaint to report chief."



electrolytic facilities at Sparrows Point, Md.

The Pittsburgh area continues to hold the No. 1 position in electrolytic tin plate capacity. It is estimated that approximately 50 pct of the industry's ability to produce is concentrated in this area, with the Middle West accounting for another 25 pct, and the balance distributed in the East, South and Pacific Coast.

#### Real Growth Began in 1943

American Iron and Steel Institute statistics show that electrolytic tin plate production began its real growth in 1943 when 329,823 tons were produced. Production rose to 647,252 in 1944; 873,470 in 1945; 896,323 in 1946; 1,772,088 in 1947; 1,956,539 in 1948, and 1,990,000 (estimated) in 1949 despite the loss of a month's production by most producers due to the strike. Meanwhile, hot dipped tin plate production declined from 3,222,472 tons in 1941 to 1,869,778 tons in 1948.

#### Pipe Production in Houston Plant Slated to Open on Aug. 1

Houston — Production of large diameter welded steel pipe for the oil and gas industry will begin in the A. O. Smith Corp.'s \$5 million Houston pipe plant on Aug. 1.

The pipe plant is the joint property of the A. O. Smith Corp. of Milwaukee and Sheffield, an Armco Steel Corp. subsidiary. It will have the capacity of 35,000 tons of pipe a month. The present backlog of orders, filed even before plant completion, include 1000 miles of 30-in. pipe for a Texas to Chicago natural gas transmission line.

#### Cost Accountants to Meet

New York—Three-city regional cost conferences on the increasing need for cost determination by business management will be held by the National Association of Cost Accountants in New Orleans, on Mar. 25; Pittsburgh, April 21-22; and Davenport, Iowa, April 27-29.

## Appliance Sales Spark Sheet Competition

**Competition for available sheet steel is terrific . . . Most appliance makers are already in the conversion market . . .**

**Appliance demand continues.**—By GEORGE ELWERS

Chicago—One of the big factors in the current Chicago area steel shortage is the "white" appliance industry, maker of enameled household appliances. Tonnagewise, the industry ranks fourth or fifth on the mills' customer lists, far behind the automobile and farm implement industries.

#### Smaller Firms Enter Market

At present the appliance industry's impact on the market is out of proportion to its tonnage requirements because the type of steel it uses is the type in shortest supply—sheet. Competition for available sheet is terrific, and the appliance industry is right in the forefront, helping keep warehouses cleaned out, snapping up occasional surplus stocks from less active industrial plants, and buying conversion sheets.

Most of the big appliance makers have been in the conversion market right along, and in the past few weeks some of the smaller firms have been lining up conversion tonnages too. In general, appliance output in this area has

not been seriously restricted by the sheet shortage. Most plants have been running at capacity since last year's severe cutback. They are continuing to do so.

The big question, as in other industries booming far above the industrial activity level, is how long it will last. Wary steel executives are doubtful of its longevity but appliance makers are optimistic and deny that any artificial factors are supporting production.

The current market demands capacity production they say. At this time of year, dealer and factory inventories should be increasing in anticipation of the heavy spring and summer selling season. Instead, dealer inventories are below normal and factory stocks of finished appliances are almost exhausted.

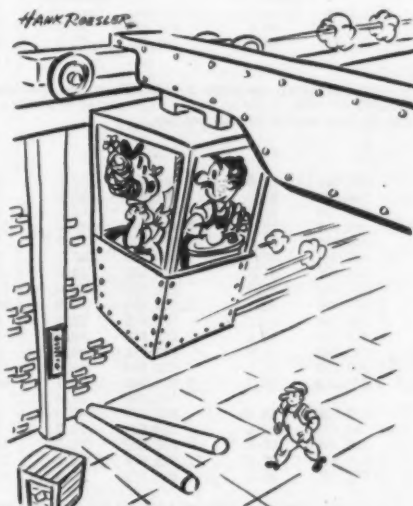
#### Demand Takes Full Production

This is not due to caution appliance makers say, but because of the over-severe cutback during last year's sales drop. Demand has taken full production since then with no chance to rebuild inventories.

The industry is optimistic about the long term outlook too. It claims that while sales of refrigerators, washing machines and hot water heaters are predominantly replacement sales now, product acceptance is high, prices are reasonable and sales are expected to continue steadily.

#### Potential For New Profits

In addition to replacement sales, they claim there is a potential for relatively new products like the electric range, which has not yet begun to saturate the available market in wired homes. Utilities, faced with power shortages during and after the war, have been holding back the promotion of



"You mean my transfer isn't any good on this route?"



electrical appliances. Now that generating capacity is rising and industrial consumption is falling off from peak levels, such promotion programs can swing into high gear and help appliance sales.

Demand the industry now believes is due to stable factors, like normal replacement of worn out or obsolete appliances, and increasing interest in newer appliances, like electric ranges and electric garbage disposal units. If a recession causes a drop in national income and forces some buyers to postpone their purchases compensation is expected to come from increased promotion of electrical appliances, the increasing number of new families, new homes and existing homes being converted to electricity.

### State Pipe Line Order Awarded

Holyoke, Mass.—A \$1.5 million order for four pipe lines in Massachusetts was awarded to the Walsh Holyoke Boiler Works Division of the Continental Copper & Steel Industries, Inc. Contract items include a reservoir pipe line through two cities and a river-crossing line.

### Reilly Chemicals to Process Lone Star's Coal Tar Products

Dallas—The Lone Star Steel Co. and the Reilly Tar and Chemical Corp. are partners in an agreement for manufacture of chemical products from the coal tar produced at Lone Star's East Texas coke plant. The Reilly company will build a \$500,000 by-products plant at Lone Star, Texas, to process the entire coal tar output of Lone Star's coke plant. In addition to providing a permanent market for the steel company's coal tar, the contract provides that it share in chemical plant profits.

### Carnegie Enlarges Power Plant

Chicago—Carnegie-Illinois Steel Corp. has begun construction on a new addition to the No. 5 power station at its South Chicago works. The installation will include a 60,000 kw steam turbine, said to be the largest single-shaft condensing turbine ever built for an industrial power plant. By-product gas will be utilized as fuel. Construction is expected to be complete by early 1951.

### Tenn. Gas Co. Gets FPC OK For Kentucky-Buffalo Pipeline

Washington—To carry an additional 170 million ft of gas daily into West Virginia, Maryland, Virginia, Pennsylvania, and New York, the proposed main transmission line of the Tennessee Gas Transmission Co. will stretch from Kentucky to Buffalo. This was the largest single project of the 2637 miles of new pipeline approved by the Federal Power Commission in the waning part of 1949.

The FPC's move sanctions the construction of pipeline which will increase delivery capacity by a billion cu ft. In 1949 the gas lines started \$615 million worth of new construction, including 7500 miles of pipeline and compressor units of 500,000 hp.

### Barium Steel Earnings Drop

New York — It was disclosed that earnings of the Barium Steel Corp., New York, fell below those of 1948 when the company announced net earnings of \$711,452 for 1949. This compares with net earnings of \$2,615,269 for 1948.

## STEEL PRODUCTION (Ingots and Steel for Castings)

As Reported to American Iron & Steel Institute

Period	OPEN HEARTH		BESSEMER		ELECTRIC		TOTAL		Calculated Weekly Production (Net Tons)	Number of Weeks in Month
	Net Tons	Percent of Capacity	Net Tons	Percent of Capacity	Net Tons	Percent of Capacity	Net Tons	Percent of Capacity		
January, 1950	7,131,519	98.5	379,252	80.6	419,601	71.9	7,930,372	93.9	1,790,152	4.43
February	6,135,099	91.9	255,565	60.2	391,784	74.3	6,782,448	88.9	1,695,612	4.00
March										4.43
Note—The percentages of capacity operated are calculated on weekly capacities of 1,666,267 net tons, open hearth, 106,195 net tons Bessemer and 131,786 net tons electric ingots and steel for castings, total 1,904,268 net tons; based on annual capacities as of January 1, 1950 as follows: Open hearth 86,984,490 net tons, Bessemer 5,537,000 net tons, Electric 6,671,310 net tons, total 99,392,800 net tons.										
* Revised.										
† Preliminary figures, subject to revision.										
January, 1949	7,287,663	101.1	408,552	92.6	487,260	93.8	8,183,475	100.2	1,847,290	4.43
February	6,633,779	102.0	379,698	95.3	467,247	99.6	7,480,724	101.4	1,870,181	4.00
March	7,473,901	103.7	430,176	97.5	483,850	93.2	8,387,927	102.7	1,893,437	4.43
1st Quarter	21,395,363	102.3	1,218,426	95.2	1,438,357	95.4	24,052,146	101.5	1,870,307	12.86
April	7,015,611	100.5	404,095	94.6	365,570	72.7	7,785,276	96.4	1,814,750	4.29
May	6,889,230	95.6	400,741	90.9	299,751	57.7	7,589,722	92.9	1,713,256	4.43
June	5,954,619	85.3	349,196	81.8	194,386	38.6	6,498,201	82.2	1,514,732	4.29
2nd Quarter	19,859,460	93.8	1,154,032	89.1	659,707	56.4	21,673,199	91.2	1,681,260	13.01
1st 6 months	41,254,823	98.0	2,372,458	92.1	2,290,064	75.8	45,925,345	96.3	1,775,236	25.87
July	5,307,471	73.8	300,236	68.2	171,415	33.1	5,779,122	70.9	1,307,494	4.42
August	6,101,499	84.7	355,335	80.6	257,910	49.7	6,714,744	82.2	1,515,744	4.43
September	5,992,306	86.1	350,282	82.2	247,601	49.3	6,590,189	83.5	1,539,764	4.28
3rd Quarter	17,401,276	81.5	1,005,853	76.9	676,926	44.0	19,084,055	76.8	1,453,470	13.13
9 months	58,656,099	92.5	3,378,311	87.0	2,974,990	65.1	65,009,400	90.4	1,686,908	39.00
October	814,374	11.3	111,059	21.4	111,059	21.4	925,433	11.3	208,901	4.43
November	3,805,730	54.5	172,270	40.3	238,262	47.4	4,216,262	53.3	982,812	4.28
December	6,951,672	96.7	396,075	90.0	389,611	71.3	7,737,358	94.7	1,745,886	4.42
4th Quarter	11,671,676	84.1	568,345	43.4	718,832	46.7	12,958,853	63.1	2,787,611	13.14
2nd 6 months	28,972,952	67.8	1,574,198	60.2	1,395,886	45.3	31,943,036	66.0	1,215,950	26.27
Total	70,227,776	92.8	3,946,656	76.0	3,693,922	60.4	77,868,353	81.0	1,493,448	52.14
Note—The percentages of capacity operated are calculated on weekly capacities of 1,626,717 net tons open hearth, 99,559 net tons Bessemer and 117,240 net tons electric ingots and steel for castings, total 1,843,516 net tons; based on annual capacities as of January 1, 1949 as follows: Open hearth 84,817,040 net tons, Bessemer 5,191,000 net tons, Electric 6,112,890 net tons, total 96,120,930 net tons.										

## Commodity Credit Grain Bin Contracts Awarded 17 Companies

Washington—About \$180 million in contracts for 15,500 aluminum and 5000 portable steel grain bins have been awarded to 17 firms by the Commodity Credit Corp., recently. Ten companies received aluminum bin contracts and seven, steel.

Contract details were not outlined but the CCC said that the erected cost will not exceed 25¢ per bu of capacity.

Winner of the largest contract was the Great Lakes Steel, at Ecorse—for 350 flat type steel bins with a total storage capacity of 13 million bu. Comprising a third of the total where contracts to Kilby Manufacturing Co., of Aniston, and the Butler Manufacturing Co., Kansas City, both for aluminum bins, and the Vulcan Iron Works, Wilkes-Barre, for steel bins.

## Will Build New Coal Terminal

Chicago—A modernized terminal and dock for transfer of coal from rail cars to lake carriers will be built here by the Rail to Water Transfer Corp. The \$350,000 project is expected to be ready for service by Aug. 1.

The new facilities will include a special chute designed to permit reaching all parts of a ship's hold which may increase loads as much as 600 tons in a 9000 ton cargo. The design is expected to cut coal degradation and breakage.

## Air Force Contracts to Curtis

Washington—A \$1.4 million contract for modification of an unspecified number of B-29 bombers has been awarded by the Air Force to the Curtis Wright Corp. of Columbus, Ohio. Texas Engineering & Mfg. Co. has been given a contract for \$150,000 for overhauling 20 T-6 aircraft. Curtis Wright was also given an \$11 million contract involving installation and spare prop assemblies, controls and blade assemblies, and spare parts for B-36 aircraft.

# INDUSTRIAL SHORTS

**AGREEMENT — AMERICAN CAN CO.,** New York, and the CIO United Steelworkers of America have signed an agreement calling for (1) a 5¢ an hr wage increase and (2) a streamlined program for adjusting grievances and modification of wage rates and shift premiums. The contract, covering 15,000 employees, also incorporates \$100 a month pensions negotiated last year.

**WHITNEY AWARD —** Robert H. Brown, chief of chemical metallurgy at Aluminum Co. of America's research laboratories in New Kensington, Pa., has been chosen by the NATIONAL ASSN. OF CORROSION ENGINEERS to receive the Whitney Award for 1950 "in recognition of his outstanding contributions to the science of corrosion."

**GOLDEN JUBILEE—**This year the ARMC STEEL CORP., Middletown, Ohio, is celebrating their fiftieth anniversary.

**GOING ABROAD—**Sidney Rolle, assistant manager of the SCOMET ENGINEERING CO., New York, expects to depart Apr. 13 for England and the Continent where he will visit metallurgical plants interested in large capacity induction furnaces for melting nonferrous metals.

**MORE MACHINES—**The outstanding stock of the Gardner Machine Co., Beloit, Wis., has been acquired by the LANDIS TOOL CO., Waynesboro, Pa., manufacturers of precision grinding machines. The manufacture of the flat surface grinding machines by Gardner will continue in Beloit under the same management and will operate as a separate corporation.

**ACQUISITION—**Edgar T. Ward Sons Co. has sold assets of its Syracuse, N. Y., warehouse to PETER A. FRASSE & CO., INC., New York. The company earlier had disposed of its Buffalo warehouse.

**HEADS CHAPTER—**The Pittsburgh Chapter of the AMERICAN SOCIETY OF TOOL ENGINEERS has elected G. C. Wood, G. C. Wood Co., Pittsburgh, its chairman and Frank T. Boyd, Walworth Co., Greensburg, Pa., has been named representative of the National House of Delegates.

**GOOD ORDER—**The U. S. Air Force has ordered more than \$2½ million worth of aeronautical instruments and components from the SPERRY GYROSCOPE CO., Great Neck, N. Y. Contracts and awards call for production of 1200 Gyrosyn compasses and a quantity of other Gyrosyn indicators, 714 directional gyros and 595 vertical gyros.

**TAKES OVER—**The manufacture and sale of Turret trucks formerly produced by the Salisbury Corp., Los Angeles, has been taken over by the HYSTER CO., Portland, Ore.

**WEST COAST OFFICE—**A district sales office will be opened in Los Angeles on Apr. 1 by LUKENS STEEL CO. and its divisions, By-Products Steel Co. and Lukenweld, Coatesville, Pa. D. Earl McElroy will become district manager of sales of the new office which will serve the southern California area.

**COACHES FOR HAVANA —**An order for 300 motor coaches has been placed by the Bus Operators' Cooperativa, Havana, Cuba, with General Motors Truck & Coach Div., GENERAL MOTORS CORP., Pontiac, costing in excess of \$3½ million.

**TUBE REP—**Amerex Electronic Corp., Brooklyn, manufacturer of transmitting, rectifying and radiation counter tubes, has appointed MOSELEY & SHARPE, 1330 North Industrial Blvd., Dallas, as their exclusive sales representative for the states of Texas, Oklahoma, Louisiana and Arkansas.



## Nonferrous Scrap Classified

New York—New standard classifications for nonferrous scrap metals were adopted last week by the National Assn. of Waste Material Dealers. They go into effect on April 1.

Seventeen new grades were added. They have been in active trading, mainly in the die cast and zinc group, condenser tubing, bushing and bearing alloys and drained whole batteries and battery lugs. Classifications for tin foil and electrotpe shells have been dropped. The new classifications listed in Circular NF 50 replace those of Circular R of June 1, 1946.

## Congress Expected to Pass Individual Freight Absorption

Washington—Congress appeared to be finally ready this week to give the nod to individual freight absorption.

Senate sponsors of legislation (S. 1008) giving industry the right to quote—without collusion—delivered prices for steel products and other heavy industrial commodities were confident of mustering enough votes for final approval of the bill.

The House last week approved by voice vote a compromise measure agreed upon by a Senate-House conference. The conferees ruled that freight absorption on an individual basis was lawful, but placed the burden of proof in legal proceedings on industry.

Although final approval of the conference report was unrecorded as to individual member votes, the House voted down, 204-175, an earlier move to kill the bill by recommitting it to committee for "further study."

## Tumpane Gets Navy Tool Job

Washington—A Navy contract for servicing and repair of 1200 machine tools stored at a government aircraft plant here went to the Tumpane Co., Inc., of Omaha. The contract, amounting to a shade less than \$139,000, is for the removal of tools from storage, disassembly, repair, reassembly, and packing.

# Sees Decline in Nonferrous Exports

**Reduced consumption and increased production of refined metals abroad darkens export picture . . . Exhausted stocks no longer hamper European producers.**

New York—A drop in nonferrous metal exports was forecast by Simon D. Strauss, vice president, American Smelting & Refining Co., at a meeting of the Secondary Metal Institute, National Assn. of Waste Material Dealers held here last week.

Reduced consumption of metals by Europeans since 1948 and increased production of refined metals abroad were the basis for Mr. Strauss' pessimism. Europe and the United States normally consume 90 pct of the world's nonferrous metal production. During the post war scarcity European countries bought metals in competition with U. S. consumers to replace exhausted working stocks and fill consumption needs. Now, however, they are partly caught up.

European production of refined metals was low at the war's end because smelters and refiners had previously exhausted their stocks of scrap, ores and concentrates. Output was further curtailed by shipping problems and the need for rebuilding and replacing facilities.

### Heavier Tonnages Available

Prewar production rates were not reached in Belgium, France, Norway and the Netherlands until 1949. High production rates have also been resumed in Canada, Chile, Mexico and Peru according to Mr. Strauss. Their output, however, has been reduced by occasional strikes after the War and little mine development during it. Refined metal production returned to normal in Africa and Australia last year.

As a result of this return to prewar production, heavier tonnages of foreign metals were made available for export to the U. S. in 1949. The trend increased after European countries devalued their currencies. Because of de-

valuation, U. S. metals are being offered to European consumers that are closer to postwar highs than the prices of metals to the U. S. consumers. Therefore, foreign producers have much less incentive than domestic producers to curtail production. Furthermore, consumers have no desire to resume higher consumption rates curtailed by high prices.

### Other Topics Discussed

Other speakers at the meeting included Edwin W. Horlebein, president, American Foundrymen's Society, and president of Gibson & Kirk Co., Baltimore, who discussed the new products and techniques of the nonferrous foundry industry; I. Glueck, secretary, Brass and Bronze Ingot Institute; and C. V. Maudlin, Washington representative of the N.A.W.M.D., who discussed tariffs and import taxes on metal scrap.

## Cold Extrusion of Steel Reaps Dividends in Savings

Cleveland—Biggest dividends of cold extrusion of steel are in the thickwalled cylindrical pieces, like artillery projectiles, rocket heads or commercial items having that general shape, Col. Merle Davis, chief of Industrial Div. Office Chief of Ordnance, Washington, told a technical symposium sponsored by Pressed Metal Institute.

Military applications of cold extrusion have been limited to hollow cylindrical shapes to date, because all investigations have been in connection with production of ammunition, the great tonnage product of war, Col. Davis said.

"We are dealing with a process which is primarily seeking savings in time, manpower and material," he emphasized, but added that cold extrusion of steel rods



in solid shapes is feasible and warrants consideration.

"The brass cartridge case is a thing of the past, because we are now a have-not nation," Col. Davis declared.

Advantages of cold extrusion, according to Col. Davis, include big savings of steel in shell production. In the case of the 105 mm, reduction of scrap loss by conventional methods from 6 to 20 lb to less than 1 lb, on a 35-lb projectile—saving in machining operations, one single purpose machine would do all the work on an extruded shell body—permit the use of low manganese, low carbon steel—improved accuracy because of fine finish—improved concentricity of the cavity with the exterior of the shell—greater uniformity of weight—a savings in plant space—and perhaps a lowering of standards of cleanliness and soundness required in shell forging stock.

"We must make cartridge cases of steel," Col. Davis warned. "We have already made in every important calibre steel cartridge cases that out-performed any brass cases ever made in that particular calibre."

He said presses with a great deal of working space are needed and predicted that in event of war, press demand would be critical because of the requirement for presses for airplane production.

## U. S. Steel's Share of Total Capacity Is Getting Smaller

New York — Although U. S. Steel's ingot capacity has tripled since its first year of operation in 1902, its share of the steel industry's total capacity is getting smaller. This was pointed out by Irving S. Olds, chairman, in the company's annual report released last week.

He reported that at the beginning of the year U. S. Steel's rated capacity for making steel ingots and castings was 32 million tons, equal to 32.2 pct of the industry total. But in 1902 U. S. Steel's ca-

capacity was equal to 44.2 pct of the total for the industry. And that year the corporation made 65.2 pct of all steel produced in the United States.

By 1935 U. S. Steel's share of total capacity had shrunk to 38.8 pct. In 1940 it was about 34 pct, where it remained 'til the end of the war.

Although its relative size in the industry has shown a downtrend, Mr. Olds said the company is still expanding. Last year "more than

700,000 tons of additional ingot capacity became available through the completion of new and improved steelmaking facilities, at a cost of \$179.1 million." This brought total postwar outlay for facilities to \$875.1 million. An estimated \$167.6 million will be required to complete facilities so far authorized. [This does not include the proposed Eastern Seaboard mill which will be built near Morrisville, Pa., on the Delaware River.]

## Medium Industries Join Conversion Bidding

Small consumers vie with mass production industries for conversion steel tonnages . . . Orders continue unabated since end of coal strike.—By JOHN DELANEY

Pittsburgh — Big mass production industries are being joined by relatively small consumers in bidding for conversion steel. A leading producer reported that medium size industries are now in the act.

These industries are not seeking anything like the heavy tonnages that the automobile producers, for example, are lining up. Some of this business is in 500 ton lots, perhaps for the purpose of enabling the consumer to squeeze through a tight spot.

A refrigerator producer is reported to have turned out 30 pct of his production during a recent period with steel obtained through conversion arrangements.

Demand for semi-finished continues very tight, due in part to requests for conversion tonnages. One mill reported being booked up solid through the second quarter.

### Incoming Orders Continue

On flat-rolled products, producers are saying that the outlook is strong as late as July. There is a slight possibility—very slight—that a customer might be lucky enough to get on the books now for delivery in June.

Incoming orders have not abated since the end of the coal strike. A Pittsburgh district producer reported that new business is still greater than the company's ability to produce, with few exceptions.

## Kaiser Expands in Israel

Detroit — Kaiser-Frazer will build an automobile assembly plant in Haifa, Israel, capable of producing 6000 cars a year. Production is scheduled to begin in August.

Basic auto parts will be shipped from the company's Willow Run plant to their new facilities in Haifa. In addition to serving the Israel market, K-F plans to export automobiles from Israel.

Total capitalization of the company is \$2,500,000.

## Repair Job on 300 Cars Ordered

Greenville, Pa.—Repair work on 300 70 and 90-ton triple hopper cars of the Bessemer and Lake Erie Railroad will begin in late April in the plant of the Greenville Steel Car Co. The repair rate will be 10 to 15 cars a day.

The Greenville firm is now building 250 50-ton box cars with special side construction for the loading of automobile parts shipments. It is also repairing 125 refrigerator cars.

## Viewing the News from

### The ECONOMIC SIDE

By JOSEPH STAGG LAWRENCE

#### "Socialism By Indirection"

ONE of the most disturbing notes out of Washington in recent months is the news, not yet official at the time of writing, that the Joint Economic Committee under the chairmanship of Senator O'Mahoney may suggest that the steel industry be held a public utility.

This news is subject to certain immediate qualifications. This view does not reflect the opinion of a fair majority of the committee. The committee is sharply divided along party lines. The notion that the steel industry is a utility is a strictly partisan opinion. It clearly anticipates the use of the steel industry as a whipping boy for the antimonopolists in both Houses of Congress.

The similarity between this partisan majority opinion of the Joint Economic Committee and the conclusions the Temporary National Economic Committee published on the eve of war is not accidental. Senator Joseph C. O'Mahoney was the chairman of each committee and Theodore J. Keps the economic adviser.

It may be recalled that the President of the United States, just before the abrupt crash of 1937, noting the high level of prosperity, boasted: "We planned it that way." As if that statement were the signal, the floodgates of economic disaster opened and the country was engulfed in one of the sharpest recessions in history.

The red faces in the capital required an immediate unguent. The TNEC was organized. Extended and carefully directed studies "proved" that the country was suffering from monopoly. The same face-saving priesthood that presided over this earlier ritual directed the recent inquiry into higher steel prices.

The committee majority, it is believed, will recommend that the industry hereafter give 30 days' notice of any intention to raise steel prices; that public hearings be held on proposed increases; that a suitable government agency be given the power of subpoena.

This has all the earmarks of an attempt, through organized public pressure and the powerful propaganda of governmental agencies, to prevent the industry in the future from making those adjustments in prices which costs and market conditions may make necessary.

To suggest that this procedure will give the steel industry the character of a public utility is erroneous. A public utility, to be sure, is not allowed to raise its prices without the prior consent of a regulatory agency. However, the same statute which creates the public body for this purpose also enjoins that body to maintain a rate structure which will permit the utility to earn a reasonable return on the capital employed in the production of the regulated service.

It is not a sense of fair play that includes this protection in the various state and national laws regulating public utilities, but rather the 5th Amendment to the Constitution. It provides that no man or institution may be compelled to surrender property for a public purpose without fair compensation.

Under the procedure, apparently being devised by the Joint Economic Committee, the steel industry may be compelled, by propaganda duress, to submit to price control which need not take into account the cost of production or the property rights of the millions of stockholders who own the companies. Nor does it require any seventh son of a seventh son to see that this device, resulting, as it well may, in a shrinking supply of steel, can lead to nationalization of the steel industry.

#### Texas Eastern to Deliver Gas to New England Utilities

New York—The Texas Eastern Transmission Corp. has contracted with the Algonquin Gas Transmission Co. for daily delivery of up to 250 million cu ft of natural gas. Algonquin Gas will resell the gas to New England utilities.

If Federal Power Commission hearings bestow approval construction will start by the end of 1950 for the winter heating season of 1951-52. Cost of the new facilities to the Big Inch and Little Big Inch system of Texas Eastern will come to about \$60 million. The pipeline proposed by Algonquin which will stretch from a delivery point on the Big Inch system near Lambertville, N. J., to New England gas distributing companies will cost approximately \$27 million.

#### J & L Steel Corp. Points Output Toward Consumer Goods

Increase percent of capacity used in sheets, tubes and tin plate.

Pittsburgh—Jones & Laughlin Steel Corp. is putting more of its productive eggs into the consumer goods basket in the hope of avoiding sharp peaks and valleys with fluctuations in business conditions.

Adm. Ben Moreell, Chairman and President, told stockholders in the company's annual report that J. & L. has been expanding the percentage of steelmaking capacity used in sheets, tubular products and tin plate.

#### Steel Shipments Declined

Steel shipments in 1949 declined due to lessened demand in mid-year and the steel strike of October and November. Shipments last year were 3,042,296 tons of rolled steel products, compared with 3,695,414 in 1948.

The company's plant improvement program, started in 1946, continued apace during 1949, when \$43 million was spent, bringing to \$147 million the amount invested to date. Another \$70 million will be spent on projects thus



far authorized, but Mr. Moreell stated that even then the program will not be complete—"still further projects must be authorized."

#### Project Starts Next Summer

Major project in the program is the building of a six-furnace open hearth shop at the Pittsburgh Works, scheduled to get underway in early summer. The furnaces will have an estimated annual capacity of 1,000,000 net tons. Two existing open hearth shops will be abandoned, so that the net capacity increase probably will be around 600,000 tons. Scheduled completion date is 1952.

As previously reported, net income for 1949 was \$20,961,000 compared with \$31,222,000 in 1948. Sales were \$386,046,149, compared with 1948's \$446,057,301.

#### Metal Goods Makers Claim Less Damage to Shipped Wares

**Pittsburgh**—Reports of a higher percentage of goods reaching customers in perfect condition and reduced claims for damage in transit were made by 27 major manufacturers of finished metal products who pre-tested their wares under the National Safe Transit Committee's plan.

Initiated 18 months ago as a cooperative industry project sponsored by this city's Porcelain Enamel Institute, the safety program offers manufacturers without testing equipment facilities, the services of 12 commercial testing firms. General chairman is R. F. Bisbee, of the Westinghouse Electric Corp.

#### French Extend Mine Program

**Pittsburgh**—The French program of mine mechanization has been extended to iron ore mines.

Joy Manufacturing Co. announced receipt of an initial order for more than \$1 million in equipment for the purpose of mechanizing iron ore mines in France. The order was placed through the French Society for the Development of Mechanical Mining, under ECA provisions.

## Forecasts Near-Record Ore Shipments

**Bad weather conditions not expected to hamper estimated shipment of 80 million tons of iron ore . . . Consumers will not be faced with ore shortage.**—By BILL LLOYD

**Cleveland** — Undaunted by March winds and low temperatures, which have teamed up to produce some of the worst ice conditions in recent years at Upper Lake ports, William J. McGarry, manager of Cleveland's Ore & Coal Exchange, forecast an 80-million ton movement of iron ore this season, second highest peacetime tonnage in Great Lakes history.

Speaking at the quarterly meeting of the Great Lakes Regional Advisory Board here, Mr. McGarry also predicted movement of 45 million tons of coal, eight million tons higher than 1949 shipments.

On the opening of lake navigation, Mr. McGarry said the best the iron ore trade can hope for is the first week in April.

#### Early Start Unnecessary

As a result of the coal strike, there is no urgency for an early start. Assuming that navigation gets under way by April 15, consumers will not be faced with a shortage of ore, although isolated shortages of certain grades may occur, according to trade sources.

Consumers primarily dependent on Lake Superior district iron ore had about 32 million gross tons on hand at furnaces and Lake Erie docks Feb. 1. February consumption of 5 million tons plus an estimated consumption of 7 million tons this month, would lower stocks to 20 million tons on hand April 1. Stocks on hand April 1, 1949 totaled 17,300,000 tons.

#### Fleet Capacity Adequate

Should unseasonably low temperatures delay opening of the season until May 1, April consumption of 7 million tons would drop the stocks to the danger point.

While movement of 10 million tons this season is close to the

wartime tonnages, fleet capacity—bogey man of the war years—will not be a problem. Addition of Inland Steel Co.'s S. S. Wilfred Sykes will increase the trip capacity of the Great Lakes bulk fleet 6,000 gross tons, to a total of 2,672,450 gross tons, despite the fact that two bulk carriers were taken out of the iron ore trade. U. S. bulk fleet totals 265 carriers.

#### Good Business Will Continue

The first meeting of the Ice Committee of Lake Carriers' Assn., was held March 5, but with 24-in ice in the channels at Duluth, Minn., and 30-in ice in the slips, it was decided that further plans for the opening of navigation will depend on warmer weather. The Ice Committee will meet again at the call of the chairman, John T. Hutchinson. First boat through the Soo last year was the John T. Hutchinson, on March 26.

Record peacetime movement of ore occurred in 1948 with 82,937,192 tons, which dropped to 69,556,269 tons last year. But the notion that six months would be the limit of good business this year is being dissipated in the current ore movement forecasts.

Coal, ore and shipping men are about evenly divided on the magnitude of this year's movement. Lowest estimate is 63,600,000 tons to a top of 87,000,000 tons. Conservative elements are clinging to an estimate of 70,000,000 tons.

Coke is expected to be a factor in the season's movement. Some consumers are trying to obtain high quality coke, including some Beehive oven product, but with little success. Lower grade coke is available, but until an adequate supply of high quality can be assured, blast furnace operations by some consumers, in the Buffalo area and other points, will not be pushed.



## Construction Steel News

Fabricated steel awards this week included the following:

- 1716 Tons, Montgomery County, Pa., State Highway & Bridge Authority, LR 769 (1a), through F. A. Canuso & Son, Philadelphia, to Phoenix Bridge Co., Phoenixville, Pa.
- 1300 Tons, Pisgah Forest, N. C., cellophane plant for Olin Industries, through E. I. duPont de Nemours, Inc., to Bethlehem Fabricators, Inc., Bethlehem.
- 1157 Tons, Lexington, Burlington and Waltham, Mass., limited access state highway, bituminous concrete surfacing and bridges, Savin Construction Co., East Hartford, Conn., low bidder.
- 1140 Tons, Montgomery County, Pa., State Highway & Bridge Authority, LR 769 (1a), through James Morrissey & Co., Philadelphia, to Phoenix Bridge Co., Phoenixville, Pa.
- 1032 Tons, Philadelphia, terminal building at Philadelphia International Airport, John McShain, Philadelphia, low bidder.
- 910 Tons, Atlantic City, N. J., Warwick Apartments, through Raleigh Construction Co., to Belmont Iron Works, Inc., Philadelphia.
- 605 Tons, Philadelphia, pharmaceutical plant for Smith, Kline & French, through Barclay White Co., Philadelphia, to Bethlehem Fabricators, Inc., Bethlehem.
- 275 Tons, Niagara Falls, N. Y., addition to plant, E. I. duPont de Nemours Co., Inc., to Belmont Iron Works, Inc., Philadelphia.
- 200 Tons, St. Louis, Veterans hospital at Jefferson Barracks, Peter Kiewit Sons Co., Denver, low bidder on general contract.
- 165 Tons, Philadelphia, office and clinic building for International Ladies Garment Workers Union, through United Building Construction Co., Philadelphia, to Morris Wheeler Co., Philadelphia.
- 151 Tons, Philadelphia, storage building for Buckley & Co., to American Iron Works, Philadelphia.
- 135 Tons, Ridgewood, New York, telephone building to Grand Iron Works, Inc.

Fabricated steel inquiries this week included the following:

- 2750 Tons, Union County, N. J., New Jersey Turnpike Authority, Moses Creek bridge and Railroad Ave. viaduct, due Apr. 4.
- 945 Tons, Boston and Somerville, Mass., two steel stringer bridges and approaches near Sullivan Square, Fred D. Sabin, Cambridge, district engineer. Completion date Dec. 31, 1950.
- 572 Tons, Allegheny County, Pa., Pennsylvania Turnpike Authority, Section 31c, due Apr. 4.
- 493 Tons, Sanders Co., Mont., bridge over Clark Fork River, Montana Highway Commission, Helena, bids to Mar. 28.
- 393 Tons, Sturbridge, Mass., steel bridge on Route 15, M. J. Dalton, Worcester district engineer. Completion date Nov. 1, 1951.
- 235 Tons, Monmouth County, N. J., New Jersey Dept. of Highways, Route 35 (40), due Apr. 6.

Reinforcing bar awards this week included the following:

- 1250 Tons, St. Louis, veterans hospital at Jefferson Barracks, Peter Kiewit Sons Co., low bidders on general contract.
- 600 Tons, Philadelphia, Byberry Hospital, to Wark & Co., Philadelphia.
- 490 Tons, Lexington, Mass., limited access state highway, bituminous concrete surfacing and five bridges (Route 128) through Gil Wyner Co., Malden, Mass., to Truscon Steel Co., South Boston, Mass.
- 350 Tons, Evanston, Illinois, Mather Home, to Jos. T. Ryerson and Son, Chicago.
- 345 Tons, Loveland, Colo., Olympus siphon, Estes Park-Foothills power aqueduct, Bureau of Reclamation Spec. 2871, through Peter Kiewit Sons Co., Omaha, to Sheffield Steel of Omaha.
- 280 Tons, Green Bay, Wisconsin, warehouse and office building for Public Service Co., to Cero Steel Products Co., Chicago.

- 225 Tons, Minneapolis, bridge for Great Northern Railway, to Bethlehem Steel Co., Bethlehem.
- 220 Tons, Urbana, Illinois, University of Illinois veterinary medicine building, to Bethlehem Steel Co., Bethlehem.
- 212 Tons, Rayville, La., jail and courthouse, J. A. Harper, Alexandria, La., general contractor.
- 155 Tons, Chicago, 6900 South Shore Drive apartment, to Jos. T. Ryerson and Son, Chicago.
- 140 Tons, Bloomington, Illinois, National Guard Armory, to Bethlehem Steel Co., Bethlehem.
- 120 Tons, Sandwich, Mass., new road, through Campanelli and Card Construction Co., Hills Grove R. I. to Truscon Steel Co., South Boston, Mass.
- 110 Tons, Pontiac, Illinois, powerhouse for state prison, to Jos. T. Ryerson and Son, Chicago.
- 100 Tons, Amity, Indiana, Indiana State Highway contract R 3158, to Bethlehem Steel Co., Bethlehem.

Reinforcing bar inquiries this week included the following:

- 1800 Tons, Garland County, Ark., dam for U. S. A. corps of engineers, bids due March 24.
- 625 Tons, Henderson, Pa., state highway construction project.
- 209 Tons, Boston and Somerville, Mass., two steel stringer bridges and approaches near Sullivan Sq. Fred D. Sabin, Cambridge, district engineer. Completion date Dec. 31, 1950.
- 175 Tons, Chicago, Algonquin apartment building.
- 129 Tons, Sturbridge, Mass., steel bridge on Route 15, M. J. Dalton, Worcester district engineer. Completion date Nov. 1, 1951.
- 110 Tons, San Luis Obispo Co., Calif., two bridges near Atascadero, California Div. of Highways, Sacramento, bids to Apr. 12.
- 100 Tons, Minneapolis, University of Minnesota home economics building.
- 100 Tons, Sanders Co., Mont., bridge over Clark Fork River, Montana Highway Commission, Helena, bids to Mar. 28.

Paving mesh awards this week included the following:

- 200 Tons, Amity, Indiana, Indiana State Highway contract R 3158, to Bethlehem Steel Co., Bethlehem.

Deformed steel inquiries this week included the following:

- 151 Tons, New Haven, Conn., three span composite welded girder bridge. Relocation of U. S. Route 1. E. T. Nettleton, New Haven, resident engineer of construction.

## Contract Construction Sets Pace for a Near-Record 1950

Washington—The Commerce Department's prophecy that 1950 contract construction will nearly equal the 1949 record of \$19.3 billion was on its way to fulfillment with a January, February off-season building spurt of \$2.9 billion, or approximately 18 pct over '49. The estimated total for this year now stands at \$18.8 billion.

In dollar volume, privately-financed housing construction was responsible for most of the gain but publicly - financed construction showed the tallest jump percentage-wise.

## Steelworker Saves City Cash

Salem, Mass.—The ingenuity of a steelworker saved this city at least \$2000, according to Mayor Francis X. Collins.

The Mayor said that Irving E. Brooks, a steel and bridge worker, volunteered to repair a power lift opening the draw on the Congress St. Bridge after city officials had decided it was beyond repair and requested a new motor.

Imagine the Mayor's surprise when Mr. Brooks submitted a bill for only \$79.95. The City Council finance committee can now lop the \$2000 item off the 1950 budget.

## Cost of New Plant Lowers Net Earnings of McLouth Steel

Detroit—McLouth Steel Corp. has reported net earnings for 1949 of \$2,136,122. This compares with earnings aggregating \$3,113,496 in 1948.

Earnings per share were \$4.49 in 1949 and \$6.54 in 1948.

Extraordinary charges incident to the construction of its new Trenton, Mich., plant contributed to the decline in earnings last year according to Donald B. McLouth, president.

## Arthur J. McKee Declares Second 75¢ Dividend This Year

Cleveland—A dividend of 75¢ a share on Class B stock, the second 75¢ dividend paid this year, was declared last week by the directors of Arthur G. McKee & Co. It is payable on April 1 to stock of record Mar. 20.

The company is making progress on a number of large petroleum refining and iron and steel projects in the U. S., Canada, England, France, Holland and Mexico, with expectations that several of these projects will be completed by the spring. Prospects for new work are being hampered by the fall in capital expenditures for modernization, replacement and expansion of plants and the dollar dearth in soft currency countries.

# MARKET

IRON AGE  
FOUNDED 1855  
MARKETS & PRICES

## Briefs and Bulletins

**in the middle**—Unwilling to recognize either the CIO-discredited United Electrical Workers or the CIO-accredited International Union of Electrical Workers, the Westinghouse Electric Corp. will not renew its contract with UE. It expires on March 31 but Westinghouse will wait for the National Labor Relations Board to hold a vote among workers to determine which shall be the bona-fide bargaining agency. Westinghouse will maintain neutrality until the election is over because it does not wish to show favoritism to either of the two contending unions.

**breezing along**—Canadian steel producers report sustained heavy demand for various iron and steel materials. Their books are now filled to the end of June. Production schedules are being maintained at virtual capacity and prospects are favorable for continued high demand through third quarter. There has been some easing in the supply of galvanized sheets within the past few weeks as a result of fairly large imports from England.

**price rise slated**—Contract customers will pay a higher price for ferro-columbium effective Apr. 1. Boosted ore costs are blamed for the jump. The price for 2 in. x D in ton lots is advanced to \$3.50 from \$2.90 per lb contained Mo. Buyers who can use tantalum in the alloy can save by purchasing ferro-tantalum-columbium for \$2.67 per lb of contained Cb plus Ta.

**up go coke prices**—Prices of Connellsville, Pittsburgh, furnace and foundry beehive coke have gone up. The rise is attributed to higher operating costs. Furnace coke advanced 50¢ to \$1 per ton while foundry coke climbed about 50¢. The new price range is \$14 to \$14.50 on furnace coke and \$16 to \$16.50 on the foundry grade.

**competition rears**—Foreign steel has been pushing itself into the Eastern market scene at a considerable discount from domestic prices. Wire rods have been offered \$13 a ton below the market. Window frame sections have been up for sale at discounts up to \$30 per ton. Even foreign nails have small discounts.

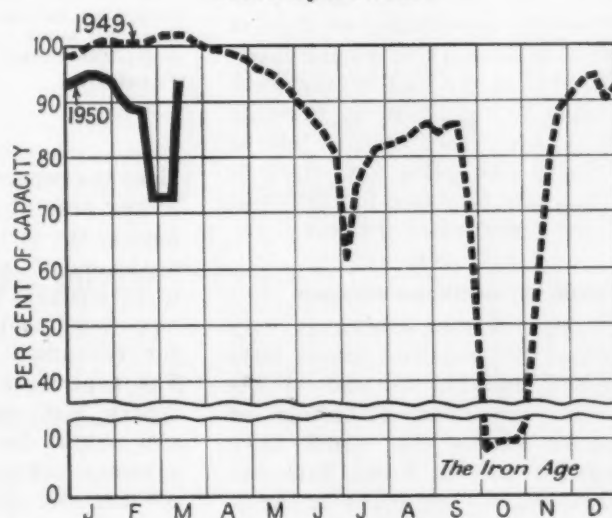
**still thriving**—Demand for stainless seems endless. Backlogs on strip are so heavy that one producer will no longer take orders on it. Stainless sheet demand is very good and the bar and wire market is active. Producers say that market stimulants are the needs of inventory replacement and a heavy demand from appliance and auto industries.

**help not coming**—A thrift-minded House of Representatives voted 164-144 against a Senate approved bill providing \$80 million a year in subsidies for the non-ferrous mining industry. Prospects for securing aid in 1950 are on the darker side of dim.

**no weakness**—Appliance makers say that current sporadic price cutting on well known appliances does not indicate weakness in the market for their products. They say that dealers are using loss leaders to get customers into their stores.

**underbidding**—Germany and Japan are underbidding British shipbuilders and taking recent business away from them. Very recently Japan took a large shipbuilding order from South America on a bid reported to be well below the British price.

Steel Operations



District Operating Rates—Per Cent of Capacity

Week of	Pittsburgh	Chicago	Youngstown	Philadelphia	Cleveland	Buffalo	Wheeling	South	Detroit	West	Ohio River	St. Louis	East	Aggregate
March 12.....	93.5*	95.5*	76.0	78.0	97.5	103.0	101.0	87.0	106.0*	85.4	79.0	84.4	98.6	90.0
March 19.....	96.5	99.5	82.5	80.0	100.0	104.0	102.5	103.0	103.0	93.0	85.0	88.9	98.6	95.0

\* Revised.

# Nonferrous METALS OUTLOOK

## Market Activities

**Tin price jumps after ceiling ends . . . Copper buying continues heavy under tariff threat . . . Zinc strong at 10¢ . . . Lead price drop seen as Mexico settlement nears.**



by

*John Anthony*

New York—The tin market bounded upward last week after its release from what was in effect a ceiling price established by RFC. The price rose to 77¢ on Thursday, an advance of 2½¢ in three days. Lack of buying interest toward the end of the week caused a reduction in price to 76¼¢ early this week. But by Tuesday the price had risen to 77¼¢, only ¼¢ below the 1949 high at the beginning of the year.

### Tariff Strengthens Copper

Copper buying continues very active. Sales during March were 81,000 tons by the end of the week. Scheduled shipments of copper during the month have reached 106,000 tons. Sales by week end for shipment in April were 54,000 tons. At this rate of buying, it is obvious that there will be another significant reduction in the industry's refined copper inventory position by the end of March. But the February inventory figure of 77,472 tons is considered to be very close to the irreducible minimum.

Most factors in the market con-

	Mar. 15	Mar. 16	Mar. 17	Mar. 18	Mar. 20	Mar. 21
Copper, electro, Conn. ....	18.50	18.50	18.50	18.50	18.50	18.50
Copper, Lake, Conn. ....	18.625	18.625	18.625	18.625	18.625	18.625
Tin, Straits, New York.....	76.50	77.00	76.00	....	76.25	77.25*
Zinc, East St. Louis .....	10.00	10.00	10.00	10.00	10.00	10.00
Lead, St. Louis .....	10.30	10.30	10.30	10.30	10.30	10.30

Note: Quotations are going prices.

\* Tentative.

sider the copper market to be firm at the present price of 18½¢, as long as the tariff is not reimposed at the end of June. There is bound to be struggle in Congress in the next few months over the need for continued tariff suspension. The experience of the metal industry last year when markets and prices disintegrated will be a strong argument in the hands of domestic producers opposing continued suspension. It appears that copper consumers, despite their fight for suspension, are convinced that there will be a tariff after the end of June. This has been a factor in the heavy buying of copper in advance of actual requirements. In the present strong market, the net effect of tariff reimposition would be to

advance the price by 2¢ per lb in the domestic market.

### Zinc Market Firm

The recent advance in the price of zinc has done nothing to dim buying interest in the market. Some factors hold that there may be a further increase in view. There is an overall lack of high grade concentrates to supply the market at the present rate of demand. The threat of strikes in Mexico have also served to stimulate interest in the metal. The definite end to hopes of a mine subsidy program is also expected to strengthen the market.

The lead market gives indications of a further price reduction, particularly since wage disputes in Mexico seem to be clearing up.



## MILL PRODUCTS

### Aluminum

(Base prices, cents per pound, base 30,000 lb, f.o.b. shipping point, freight allowed)  
Flat Sheet: 0.188 in., 2S, 3S, 26.9¢; 4S, 61S-O, 28.8¢; 52S, 30.9¢; 24S-O, 24S-OAL, 29.8¢; 76S-O, 76S-OAL, 36.3¢; 0.081 in., 2S, 3S, 27.9¢; 4S, 61S-O, 30.2¢; 52S, 32.3¢; 24S-O, 24S-OAL, 30.9¢; 76S-O, 76S-OAL, 38¢; 0.032 in., 2S, 3S, 29.5¢; 4S, 61S-O, 33.5¢; 52S, 36.2¢; 24S-O, 24S-OAL, 37.9¢; 76S-O, 76S-OAL, 47.6¢.

Plate: 1/4 in., and heavier: 2S, 3S, F, 23.8¢; 4S-F, 26¢; 52S-F, 27.1¢; 61S-O, 26.6¢; 24S-F, 24S-FAL, 27.1¢; 76S-F, 76S-FAL, 33.9¢.

Extruded Solid Shapes: Shape factors 1 to 4, 33.6¢ to 64¢; 11 to 13, 34.6¢ to 76¢; 23 to 25, 36.7¢ to 81.0¢; 35 to 37, 44¢ to 1.53; 47 to 49, 63.6¢ to 82.20.

Rod, Rolled: 1.5 to 4.5 in., 2S-F, 3S-F, 34¢ to 30.5¢; Cold-finished, 0.375 to 3 in., 2S, 3S, 36.5¢ to 32¢.

Screw Machine Stock: Rounds, 11S-T3, R317-T4; 1/4 to 1 1/2 in., 49¢ to 38¢; 3/4 to 1 1/2 in., 37.5¢ to 35.5¢; 1 1/2 to 3 in., 35.5¢ to 32.5¢; 1 1/2-T4 lower by 1¢ per lb. Base 5000 lb.

Drawn Wire: Coiled, 0.061 to 0.374 in.; 2S, 36¢ to 26.5¢; 52S, 44¢ to 32¢; 56S, 47¢ to 38.5¢; 17S-T4, 50¢ to 34.5¢; 61S-T4, 44.5¢ to 84¢; 76S-T-6, 76¢ to 65¢.

### Magnesium

(Cents per lb, f.o.b. mill, freight allowed)

Sheets and Plate: Ma, FSA, 1/4 in., 54¢-56¢; 0.188 in., 56¢-58¢; B & S gage 8, 58¢-60¢; 10, 59¢-61¢; 12, 63¢-65¢; 14, 69¢-74¢; 16, 76¢-81¢; 18, 84¢-89¢; 20, 96¢-1.01; 22, 1.12-1.31; 24, 1.62-1.75. Specification grade higher. Base: 30,000 lb.

Extruded Round Rod: M, diam in., 1/4 to 0.311, 68¢; 1/2 to 1/4, 46¢; 1/2 to 1.749, 48¢; 2 1/2 to 5, 41¢. Other alloys higher. Base: Up to 1/4 in. diam., 10,000 lb; 1/4 in. to 1 1/4 in., 20,000 lb; 1 1/4 in. and larger, 30,000 lb.

Extruded Square, Hex. Bar: M, size across flats, in., 1/4 to 0.311, 61¢; 1/2 to 0.749, 48¢; 1 1/4 to 1.749, 44¢; 2 1/2 to 4, 42¢. Other alloys higher. Base: Up to 1/4 in. diam., 10,000 lb; 1/4 in. to 1 1/4 in., 20,000 lb; 1 1/4 in. and larger, 30,000 lb.

Extruded Solid Shapes, Rectangle: M, in weight per ft, for perimeters of less than size indicated, 0.10 to 0.11 lb per ft, per. up to 3.5 in., 55¢ to 0.22 to 0.25 lb per ft, per. up to 5.9 in., 51¢; 0.50 to 0.59 lb per ft, per. up to 8.6 in., 47¢; 1.8 to 2.59 lb per ft, per. up to 19.5 in., 44¢; 4 to 6 lb per ft, per. up to 28 in., 49¢. Other alloys higher. Base, in weight per ft of shape: Up to 1/2 lb, 10,000 lb; 1/2 lb to 1.80 lb, 20,000 lb; 1.80 lb and heavier, 30,000 lb.

Extruded Round Tubing: M, wall thickness, outside diam. in., 0.049 to 0.087, 1/4 to 5/16, 1.14; 5/16 to 3/8, 1.02; 3/8 to 1/2, 76¢; 1/2 to 1 in., 65¢; 0.065 to 0.082, 1/2 to 7/16, 85¢; 1/2 to 3/4, 62¢; 1 to 2 in., 57¢; 0.165 to 0.219, 3/4 to 1, 54.5¢; 1 to 2 in., 53¢; 3 to 4 in., 49¢. Other alloys higher. Base, OD in in.: Up to 1 1/2 in., 10,000 lb; 1 1/2 in. to 3 in., 20,000 lb; 3 in. and larger, 30,000 lb.

### Nickel and Monel

(Base prices, cents per lb, f.o.b. mill)

	Nickel	Monel
Sheets, cold-rolled	60	47
Strip, cold-rolled	66	50
Rods and bars	56	45
Angles, hot-rolled	56	45
Plates	58	46
Seamless tubes	89	80
Shot and blocks		40

### Copper, Brass, Bronze

(Cents per lb, freight prepaid on 200 lb)

	Sheets	Rods	Extruded Shapes
Copper	32.18		31.78
Copper, h-r		28.03	
Copper, drawn		29.28	
Low brass	30.12	29.81	33.03
Yellow brass	28.69	28.38	31.70
Red brass	30.60	30.29	33.51
Naval brass	33.51	27.57	28.82
Leaded brass		23.19	27.22
Com'l bronze	31.61	31.30	34.27
Manganese bronze			
Phosphor bronze	37.01	30.92	32.42
Muntz metal	50.90	51.15	
Aluminum bronze	31.58	27.14	28.39
Nickel silver			
10 pct	39.60	41.87	46.80
Arch. bronze			27.22

\*Seamless tubing.

## PRIMARY METALS

(Cents per lb, unless otherwise noted)

Aluminum, 99+%, 10,000 lb, freight allowed	17.00
Aluminum pig	16.00
Antimony, American, Laredo, Tex.	24.50
Beryllium copper, 3.75-4.25% Be	
dollars per lb contained Be	\$24.50
Beryllium aluminum 5% Be, dollars per lb contained Be	\$52.00
Bismuth, ton lots	\$2.00
Cadmium, del'd	\$2.00
Cobalt, 97-99% (per lb)	\$1.80 to \$1.87
Copper, electro, Conn. Valley	18.50
Copper, lake, Conn. Valley	18.50
Gold, U. S. Treas., dollars per oz.	\$35.00
Indium, 99.8%, dollars per troy oz.	\$2.25
Iridium, dollars per troy oz.	\$100 to \$110
Lead, St. Louis	10.30
Lead, New York	10.50
Magnesium, 99.8+%, f.o.b. Freeport, Tex.	20.50
Magnesium, sticks, 100 to 5000 lb	
Mercury, dollars per 76-lb flask	36¢ to 38¢
f.o.b. New York	\$70 to \$73
Nickel, electro, f.o.b. New York	42.97
Palladium, dollars per troy oz.	\$24.00
Platinum, dollars per troy oz.	\$66 to \$69
Silver, New York, cents per oz.	73.25
Tin, New York	77.25
Zinc, East St. Louis	10.00
Zinc, New York	10.72
Zirconium copper, 10-12 pct Zr, per lb contained Zr	\$12.00

## REMELTED METALS

### Brass Ingot

(Cents per lb delivered, carloads)

85-5-5-5 ingot	
No. 115	16.75-18.25
No. 120	16.25-17.75
No. 123	15.75-17.25
80-10-10 ingot	
No. 305	21.75
No. 315	19.75
88-10-2 ingot	
No. 210	27.75
No. 215	25.25
No. 245	18.25-21.00
Yellow ingot	
No. 405	14.25-16.00
Manganese bronze	
No. 421	20.75

### Aluminum Ingot

(Cents per lb, lot of 30,000 lb)

95-5 aluminum-silicon alloys	
0.30 copper, max.	18.25-18.75
0.60 copper, max.	18.00-18.50
Piston alloys (No. 122 type)	16.50-17.00
No. 12 alum. (No. 2 grade)	15.75-16.25
108 alloy	16.50-17.00
195 alloy	17.25-17.75
13 alloy	18.25-18.75
AXS-679	16.75-17.25

### Steel deoxidizing aluminum, notch-bar granulated or shot

Grade 1—95-97 1/2%	17.50-18.00
Grade 2—92-95%	16.50-17.00
Grade 3—90-92%	15.50-16.00
Grade 4—85-90%	15.00-15.50

## ELECTROPLATING SUPPLIES

### Anodes

(Cents per lb, freight allowed, in 500 lb lots)

Copper	
Cast, oval, 15 in. or longer	35 1/4
Electrodeposited	29 1/2
Roller, oval, straight, delivered	33
Forged ball anodes	34
Brass, 80-20	
Cast, oval, 15 in. or longer	31
Zinc, oval, 99.88%, f.o.b. Detroit	17 1/4
Ball anodes	16 1/4
Nickel 99 pct plus	
Cast	59.00
Roller, depolarized	60.00
Cadmium	\$2.15
Silver 999 fine, roller, 100 oz lots, per troy oz, f.o.b. Bridgeport, Conn.	79

### Chemicals

(Cents per lb, f.o.b. shipping point)

Copper cyanide, 100 lb drum	46 1/4
Copper sulfate, 99.5 crystals, bbl.	12.00
Nickel salts, single or double, 4-100 lb bags, frt allowed	18.00
Nickel chloride, 300 lb bbl.	24.50
Silver cyanide, 100 oz lots, per oz	59
Sodium cyanide, 96 pct domestic 200 lb drums	19.25
Zinc sulfate, 89 pct granular	7.15
Zinc cyanide, 100 lb drums	38.00

## SCRAP METALS

### Brass Mill Scrap

(Cents per pound, add 1/2¢ per lb for shipments of 20,000 to 40,000 lb; add 1¢ for more than 40,000 lb)

	Heavy	Turn-ings
Copper	14 1/2	14 1/2
Yellow brass	12 1/2	13 1/2
Red brass	14 1/2	13 1/2
Commercial bronze	12	11 1/2
Manganese bronze	12 1/2	11 1/2
Leaded brass rod ends	12 1/2	

### Custom Smelters' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper wire	15.25
No. 2 copper wire	14.25
Light copper	13.25
No. 1 composition	12.50
No. 1 comp. turnings	12.00
Roller brass	10.50
Brass pipe	11.00
Radiators	9.75
Radiators	9.75

\*Dry copper content.

### Ingot Makers' Scrap

(Cents per pound, carload lots, delivered to producer)

No. 1 copper wire	15.25
No. 2 copper wire	14.25
Light copper	13.25
No. 1 composition	12.50
No. 1 comp. turnings	12.00
Roller brass	10.50
Brass pipe	11.00
Radiators	9.75
Heavy yellow brass	9.50

### Aluminum

Mixed old cast	9.25-9.50
Mixed old clips	9.25-9.50
Mixed turnings, dry	6.50-7.00
Pots and pans	9.25-9.50
Low copper	11.50-12.00

### Dealers' Scrap

(Dealers' buying prices, f.o.b. New York in cents per pound)

### Copper and Brass

No. 1 heavy copper and wire	13 1/4-14
No. 2 heavy copper and wire	12 1/4-13
Light copper	11 1/4-12 1/4
Auto radiators (unsweated)	8 1/4-8 1/2
No. 1 composition	11 1/4-11 1/2
No. 1 comp. turnings	10 1/4-10 1/2
Clean red car boxes	9-9 1/4
Cocks and faucets	9-9 1/4
Mixed heavy yellow brass	7 1/4-7 1/2
Old roller brass	8 1/4-8 1/2
Brass pipe	9 1/4-9 1/2
New soft brass clippings	10 1/4-11
Brass rod ends	9 1/4-10
No. 1 brass rod turnings	9 1/4-9 1/2

### Aluminum

Alum. pistons and struts	4 1/2-5
Aluminum crankcases	7-7 1/2
2S aluminum clippings	10 1/4-11
Old sheet and utensils	7-7 1/2
Borings and turnings	4
Misc. cast aluminum	7-7 1/2
Dural clips (24S)	7-7 1/2

### Zinc

New zinc clippings	6 1/2-7
Old zinc	4-4 1/2
Zinc routings	2 1/4-3
Old die cast scrap	3 1/4-3 1/2

### Nickel and Monel

Pure nickel clippings	21-23
Clean nickel turnings	14-15
Nickel anodes	30-32
Nickel rod ends	30-32
New Monel clippings	12-14
Clean Monel turnings	8-9
Old sheet Monel	10-12
Old Monel castings	9-10
Inconel clippings	11-13
Nickel silver clippings, mixed	8-10
Nickel silver turnings, mixed	6-7

### Lead

Soft scrap, lead	8-8 1/4
Battery plates (dry)	3 1/4-4

### Magnesium

Segregated solids	9-10
Castings	5 1/2-6 1/2

### Miscellaneous

Block tin	60-62
No. 1 pewter	38-40
No. 1 auto babbitt	35-37
Mixed common babbitt	8-8 1/4
Solder joints	11-11 1/2
Siphon tops	40-42
Small foundry type	10 1/4-11
Monotype	9 1/4-10
Lino. and stereotype	8 1/4-9 1/4
Electrotype	8-8 1/4
New type shell cuttings	11 1/4-11 1/2
Hand picked type shells	4-4 1/2
Lino. and stereo. dross	3 1/4-4
Electro. dross	2 1/4-2 1/2

## Comparison of Prices

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Flat-Rolled Steel:	Mar. 21, 1950	Mar. 14, 1950	Feb. 21, 1950	Mar. 22, 1949
(cents per pound)	1950	1950	1950	1949
Hot-rolled sheets	3.35	3.35	3.35	3.26
Cold-rolled sheets	4.10	4.10	4.10	4.00
Galvanized sheets (10 ga)	4.40	4.40	4.40	4.40
Hot-rolled strip	3.25	3.25	3.25	3.265
Cold-rolled strip	4.21	4.21	4.21	4.063
Plates	3.50	3.50	3.50	3.42
Plates wrought iron	7.85	7.85	7.85	7.85
Stains C-R strip (No. 302)	33.00	33.00	33.00	33.25

### Tin and Terneplate:

(dollars per base box)				
Tinplate (1.50 lb) cokes	\$7.50	\$7.50	\$7.50	\$7.75
Tinplate, electro (0.50 lb)	6.60	6.60	6.60	6.70
Special coated mfg. ternes	6.50	6.50	6.50	6.65

### Bars and Shapes:

(cents per pound)				
Merchant bars	3.45	3.45	3.45	3.37
Cold-finished bars	4.145	4.145	4.145	3.995
Alloy bars	3.95	3.95	3.95	3.75
Structural shapes	3.40	3.40	3.40	3.25
Stainless bars (No. 302)	28.50	28.50	28.50	28.50
Wrought iron bars	9.50	9.50	9.50	9.50

### Wire:

(cents per pound)				
Bright wire	4.50	4.50	4.50	4.15

### Rails:

(dollars per 100 lb)				
Heavy rails	\$3.40	\$3.40	\$3.40	\$3.20
Light rails	3.75	3.75	3.75	3.55

### Semifinished Steel:

(dollars per net ton)				
Rerolling billets	\$54.00	\$54.00	\$54.00	\$52.00
Slabs, rerolling	54.00	54.00	54.00	52.00
Forging billets	63.00	63.00	63.00	61.00
Alloy blooms, billets, slabs	66.00	66.00	66.00	63.00

### Wire Rod and Skelp:

(cents per pound)				
Wire rods	3.85	3.85	3.85	3.463
Skelp	3.15	3.15	3.15	3.25

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*.

Pig Iron:	Mar. 21, 1950	Mar. 14, 1950	Feb. 21, 1950	Mar. 22, 1949
(per gross ton)	1950	1950	1950	1949
No. 2, foundry, Phila.	\$50.42	\$50.42	\$50.42	\$51.56
No. 2, Valley furnace	46.50	46.50	46.50	46.50
No. 2, Southern Cin'ti	49.08	49.08	49.08	49.46
No. 2, Birmingham	42.38	42.38	42.38	43.38
No. 2, foundry, Chicago†	46.50	46.50	46.50	46.50
Basic del'd Philadelphia	49.92	49.92	49.92	50.76
Basic, Valley furnace	46.00	46.00	46.00	46.00
Malleable, Chicago†	46.50	46.50	46.50	46.50
Malleable, Valley	46.50	46.50	46.50	46.50
Charcoal, Chicago	68.56	68.56	68.56	73.78
Ferromanganese†	173.40	173.40	173.40	173.40

†The switching charge for delivery to foundries in the Chicago district is \$1 per ton.

‡Average of U. S. prices quoted on Ferroalloy page.

### Scrap:

(per gross tons)				
Heavy melt'g steel, P'gh.	\$32.25	\$32.25	\$31.75	\$36.75
Heavy melt'g steel, Phila.	24.50	23.00	23.00	34.50
Heavy melt'g steel, Ch'go	28.50	28.50	27.50	33.50
No. 1 hy. com. sh't, Det.	25.50	25.50	22.50	31.00
Low phos. Young'n.	32.75	32.75	32.75	39.00
No. 1, cast, Pittsburgh	39.50	39.50	37.50	41.50
No. 1, cast, Philadelphia	36.50	35.50	35.50	38.50
No. 1, cast, Chicago	39.50	39.50	39.50	41.50

### Coke: Connellsville:

(per net ton at oven)				
Furnace coke, prompt	\$14.25	\$14.00	\$14.00	\$14.50
Foundry coke, prompt	16.25	15.75	15.75	16.50

### Nonferrous Metals:

(cents per pound to large buyers)				
Copper, electro, Conn.	18.50	18.50	18.50	23.50
Copper, Lake Conn.	18.625	18.625	18.625	23.625
Tin Straits, New York	77.25†	75.50*	74.50	\$1.03
Zinc, East St. Louis	10.00	10.00	9.75	17.50
Lead, St. Louis	10.30	10.30	11.80	17.80
Aluminum, virgin	17.00	17.00	17.00	17.00
Nickel electrolytic	42.97	42.97	42.97	42.93
Magnesium, ingot	20.50	20.50	20.50	20.50
Antimony, Laredo, Tex.	24.50	24.50	27.25	38.50

\* Revised. † Tentative.

[Starting with the issue of May 12, 1940, the weighted finished steel composite was revised for the years 1941 to date. The weights used are based on the average product shipments for the 7 years 1937 to 1940 inclusive and 1946 to 1948 inclusive. The use of quarterly figures has been eliminated because it was too sensitive. (See p. 139 of May 12, 1940, issue.)]

## Composite Prices

### Finished Steel Base Price

Mar. 21, 1950	3.837¢ per lb.
One week ago	3.837¢ per lb.
One month ago	3.837¢ per lb.
One year ago	3.754¢ per lb.

	High	Low
1950....	3.837¢ Jan. 3	3.837¢ Jan. 3
1949....	3.837¢ Dec. 27	3.705¢ May 3
1948....	3.721¢ July 27	3.193¢ Jan. 1
1947....	3.193¢ July 29	2.848¢ Jan. 1
1946....	2.848¢ Dec. 31	2.464¢ Jan. 1
1945....	2.464¢ May 29	2.396¢ Jan. 1
1944....	2.396¢	2.396¢
1943....	2.396¢	2.396¢
1942....	2.396¢	2.396¢
1941....	2.396¢	2.396¢
1940....	2.30467¢ Jan. 2	2.24107¢ Apr. 16
1939....	2.35367¢ Jan. 3	2.26689¢ May 16
1938....	2.58414¢ Jan. 4	2.27207¢ Oct. 18
1937....	2.58414¢ Mar. 9	2.32263¢ Jan. 4
1936....	2.32263¢ Dec. 28	2.05200¢ Mar. 10
1935....	2.07642¢ Oct. 1	2.06492¢ Jan. 8
1932....	1.89196¢ July 5	1.83910¢ Mar. 1
1929....	2.31773¢ May 28	2.26498¢ Oct. 29

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strip, representing major portion of finished steel shipments. Index recapitulated in Aug. 28, 1941, issue and in May 12, 1949.

### Pig Iron

....\$46.38 per gross ton....
.... 46.38 per gross ton....
.... 46.38 per gross ton....
.... 46.74 per gross ton....

	High	Low
\$46.38 Feb. 7	\$45.88 Jan. 3	
46.87 Jan. 18	45.88 Sept. 6	
46.91 Oct. 12	39.58 Jan. 6	
37.98 Dec. 30	30.14 Jan. 7	
30.14 Dec. 10	25.37 Jan. 1	
25.37 Oct. 23	23.61 Jan. 2	
\$23.61	\$23.61	
23.61	23.61	
\$23.61 Mar. 20	\$23.45 Jan. 2	
23.45 Dec. 23	22.61 Jan. 2	
22.61 Sept. 19	20.61 Sept. 12	
23.25 June 21	19.61 July 6	
23.25 Mar. 9	20.25 Feb. 16	
19.74 Nov. 24	18.73 Aug. 11	
18.84 Nov. 5	17.83 May 14	
14.81 Jan. 5	13.56 Dec. 6	
18.71 May 14	18.21 Dec. 17	

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

### Scrap Steel

.....\$28.42 per gross ton.....
..... 27.92 per gross ton.....
..... 27.42 per gross ton.....
..... 34.92 per gross ton.....

	High	Low
\$28.42 Mar. 21	\$26.25 Jan. 3	
43.00 Jan. 4	19.33 June 28	
43.16 July 27	39.75 Mar. 9	
42.58 Oct. 28	29.50 May 20	
31.17 Dec. 24	19.17 Jan. 1	
19.17 Jan. 2	18.92 May 22	
19.17 Jan. 11	15.76 Oct. 24	
\$19.17	\$19.17	
19.17	19.17	
\$22.00 Jan. 7	\$19.17 Apr. 10	
21.83 Dec. 30	16.04 Apr. 9	
22.50 Oct. 3	14.08 May 16	
15.00 Nov. 22	11.00 June 7	
21.92 Mar. 30	12.67 June 9	
17.75 Dec. 21	12.67 June 8	
13.42 Dec. 10	10.33 Apr. 29	
8.50 Jan. 12	6.43 July 5	
17.58 Jan. 29	14.08 Dec. 8	

Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.



MARKETS—PRICES—TRENDS



# SCRAP

## Iron & Steel

### Price Increases Holding in Firm Market

The general undertone of the market remains firm with little activity in the principal areas, after the overall increases of last week. The price in Pittsburgh for No. 1 heavy melting steel, quoted last week at a top of \$32.50 received further confirmation when a Pittsburgh mill recently bought a representative tonnage at that price.

The market remains firm in New York, Cleveland and Youngstown with not many sales being made. Brokers are still filling back orders. In Detroit, the market continues strong although buying is light. A real test of prices there was expected this week when some car manufacturers are expected to sell their April lists.

Philadelphia scrap prices advanced last week for the first time since mid-November. Heavy melting grades advanced \$1.50 a ton on the customary volume of small business being done in the market. Higher Pittsburgh market prices had begun to draw off scrap

from Philadelphia as well as Baltimore. The increased prices will stem the loss of scrap to the western market. Dealers' yards are loaded with bundles which may move West despite the increased prices.

**PITTSBURGH**—The top price of No. 1 heavy melting steel remains unchanged at \$32.50 a ton here this week though it was off 50¢ a ton for a short while last week. No. 2 steel is off 50¢ a ton on sales this week. Following a 10,000-ton purchase of No. 1 and No. 2 steel at \$32.00 and \$29.00 respectively last week, another substantial sale of these grades was made at \$32.50 and \$29.00 respectively.

**CHICAGO**—Scrap prices held firm this week, with very little market activity as the trade awaited mill action on April requirements. Supply and demand seems pretty well in balance on most scrap items, and the trade expects little in the way of price movement over the near term. Foundry scrap seems weaker, although prices have not dropped.

**PHILADELPHIA**—Prices of heavy melting grades rose \$1.50 last week on buying by several consumers at the higher price. No. 2 bundles were up only \$1. Mixed turnings were up \$1, and shoveling were up 50¢. Low phos grades were up 50¢ to \$1. Rails and rail specialties were up \$1. Machinery, yard cast and car-wheels were up \$1. Bundles still constit-

tute a burden to this market, as shipments over the past few months have favored melting grades at the expense of bundles. Shipments have been going out of this market to Pittsburgh.

**NEW YORK**—Prices in this area remained pretty much the same after last week's increases. There is a better feeling in the market. Although the good grades are a little hard to come by, there is an abundance of No. 2 bundles and not much activity in the other grades. No. 1 heavy melting steel and the cast grades are going strong. No big sales were made this week. Brokers are still working on old orders. It is the general opinion that prices won't be slipping off for a while.

**DETROIT**—The tone of the market is strong here but buying is light according to reports this week from the trade. Indications that some bundles are being stockpiled at local docks had added some recent emphasis to the strength of the market for bundles. However, market experts agree that the present market is yet to be tested and that such a test will come this week when some car makers are expected to sell their April lists.

**CLEVELAND**—An interim period, insistence on shipments but no new sales, marked the scrap market here and in the Valley this week. What seems to be the case is that more tonnage has been sold than is ready to move, and short covering, in addition to strengthening the market has also firmed up the resolve of some dealers to hold out for higher prices. Mills will doubtless resist any advance in prices, but the effect of conversion tonnage in the market may be the deciding factor.

**ST. LOUIS**—Foundry grades are up \$1 a ton in the St. Louis market principally because of increasing demand from other markets. Melting grades are stronger although prices are unchanged on the expectation that steel mills will come into the market again within the next 10 days or two weeks. Offerings are light as are shipments. Railroad lists: Louisville & Nashville 7500 tons, Missouri, Kansas, Texas 10 carloads and Gulf Mobile & Ohio 20 carloads.

**BOSTON**—A big foundry came into the market here for 1000 tons and gave the cast business a shot in the arm. Though quick delivery was not asked for, the trade here feels that this is just a start and that more orders would be placed soon.

**BUFFALO**—Buying interest in scrap is reported within prevailing ranges but the recent shrinkage in collection has dealers reluctant to accept new orders at this time. Hope is held that open weather this week will spur the movement of material.

**CINCINNATI**—An unchanged scrap market, both in spirit and in price, prevailed here this week with most district mills in a comfortable inventory position. Movement of tonnage from dealers' yards is limited, as some of the dealers, sensing a possible rise, are holding out for higher prices.

**BIRMINGHAM**—Demand is beginning to pick up here for openhearth grades although there has been no price increase. In fact the price for No. 1 railroad heavy melting steel is nominal since railroads serving this district are selling that grade in markets where higher prices prevail.



### Pittsburgh

No. 1 hvy. melting	\$32.00 to \$32.50
No. 2 hvy. melting	28.50 to 29.00
No. 1 bundles	32.00 to 32.50
No. 2 bundles	24.50 to 25.00
Machine shop turn.	22.00 to 22.50
Mixed bor. and ms. turns.	22.00 to 22.50
Shoveling turnings	24.50 to 25.00
Cast iron borings	24.50 to 25.00
Low phos. plate	33.50 to 34.00
Heavy turnings	27.00 to 28.00
No. 1 RR. hvy. melting	33.00 to 33.50
Scrap rails, random lgth.	35.50 to 36.50
Rails 2 ft and under	38.00 to 39.00
RR. steel wheels	35.50 to 36.00
RR. spring steel	35.50 to 36.00
RR. couplers and knuckles	35.50 to 36.00
No. 1 machinery cast	39.00 to 40.00
Mixed yard cast	34.00 to 35.00
Heavy breakable cast	32.50 to 33.50
Malleable	35.00 to 36.00

### Chicago

No. 1 hvy. melting	\$28.00 to \$29.00
No. 2 hvy. melting	26.00 to 27.00
No. 1 factory bundles	27.00 to 28.00
No. 1 dealers' bundles	25.00 to 26.50
No. 2 dealers' bundles	24.00 to 25.00
Machine shop turn.	18.00 to 19.00
Mixed bor. and turn.	19.00 to 20.00
Shoveling turnings	20.50 to 21.50
Cast iron borings	20.00 to 21.00
Low phos. forge crops	32.00 to 33.00
Low phos. plate	30.50 to 31.50
No. 1 RR. hvy. melting	29.00 to 30.00
Scrap rails, random lgth.	34.00 to 35.00
Rerolling rails	42.00 to 43.00
Rails 2 ft and under	44.00 to 45.00
Locomotive tires, cut	34.00 to 35.00
Cut bolsters & side frames	31.00 to 32.00
Angles and splice bars	35.00 to 36.00
RR. steel car axles	42.00 to 43.00
RR. couplers and knuckles	32.00 to 33.00
No. 1 machinery cast	39.00 to 40.00
No. 1 agricul. cast	37.00 to 38.00
Heavy breakable cast	30.00 to 31.00
RR. grate bars	29.00 to 30.00
Cast iron brake shoes	30.00 to 31.00
Cast iron car wheels	36.00 to 37.00
Malleable	37.00 to 38.00

### Philadelphia

No. 1 hvy. melting	\$24.00 to \$25.00
No. 2 hvy. melting	22.00 to 23.00
No. 1 bundles	24.00 to 25.00
No. 2 bundles	18.50 to 19.50
Machine shop turn.	15.00 to 15.50
Mixed bor. and turn.	15.00 to 15.50
Shoveling turnings	18.50 to 19.00
Low phos. punchings, plate	26.50 to 27.00
Low phos. 5 ft and under	28.00 to 28.50
Low phos. bundles	25.00 to 25.50
Hvy. axle forge turn.	23.50 to 24.50
Clean cast chem. borings	28.00 to 29.00
RR. steel wheels	29.00 to 30.00
RR. spring steel	29.00 to 30.00
Rails 18 in. and under	36.00 to 37.00
No. 1 machinery cast	36.00 to 37.00
Mixed yard cast	31.00 to 32.00
Heavy breakable cast	33.00 to 34.00
Cast iron car wheels	37.00 to 38.00
Malleable	37.00 to 38.00

### Cleveland

No. 1 hvy. melting	\$28.00 to \$28.50
No. 2 hvy. melting	26.00 to 26.50
No. 1 busheling	28.00 to 28.50
No. 1 bundles	28.00 to 28.50
No. 2 bundles	22.50 to 23.00
Machine shop turn.	18.50 to 19.00
Mixed bor. and turn.	20.50 to 21.00
Shoveling turnings	20.50 to 21.00
Cast iron borings	20.50 to 21.00
Low phos. 2 ft and under	29.00 to 29.50
Steel axle turn.	27.00 to 27.50
Drop forge flashings	28.00 to 28.50
No. 1 RR. hvy. melting	32.00 to 32.50
Rails 3 ft and under	42.00 to 43.00
Rails 18 in. and under	43.00 to 44.00
No. 1 machinery cast	42.00 to 43.00
RR. cast	42.00 to 43.00
RR. grate bars	30.00 to 31.00
Stove plate	34.00 to 35.00
Malleable	38.00 to 39.00

### Youngstown

No. 1 hvy. melting	\$31.50 to \$32.00
No. 2 hvy. melting	29.50 to 30.00
No. 1 bundles	31.50 to 32.00

### Iron and Steel

## SCRAP PRICES

Going prices as obtained in the trade by THE IRON AGE, based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

No. 2 bundles	\$24.50 to \$25.00
Machine shop turn.	21.00 to 21.50
Shoveling turnings	23.00 to 23.50
Cast iron borings	23.00 to 23.50
Low phos. plate	32.50 to 33.00

### Buffalo

No. 1 hvy. melting	\$27.50 to \$28.00
No. 2 hvy. melting	25.50 to 26.00
No. 1 busheling	25.50 to 26.00
No. 1 bundles	26.50 to 27.00
No. 2 bundles	24.00 to 24.50
Machine shop turn.	18.00 to 18.50
Mixed bor. and turn.	19.00 to 19.50
Shoveling turnings	20.50 to 21.00
Cast iron borings	19.50 to 20.00
Low phos. plate	29.00 to 29.50
Scrap rails, random lgth.	33.50 to 34.00
Rails 2 ft and under	38.50 to 39.00
RR. steel wheels	33.00 to 33.50
RR. spring steel	33.00 to 33.50
RR. couplers and knuckles	33.00 to 33.50
No. 1 machinery cast	35.00 to 36.00
No. 1 cupola cast	30.50 to 31.50
Stove plate	30.00 to 31.00
Small indus. malleable	30.00 to 30.50

### Birmingham

No. 1 hvy. melting	\$24.00
No. 2 hvy. melting	22.00
No. 2 bundles	20.00
No. 1 busheling	23.00
Machine shop turn.	\$18.00 to \$18.50
Shoveling turnings	20.00 to 21.00
Cast iron borings	19.00
Bar cross and plate	27.00 to 28.00
Structural and plate	27.00 to 28.00
No. 1 RR. hvy. melt.	26.00 to 27.00
Scrap rails, random lgth.	29.00 to 30.00
Rerolling rails	33.00 to 34.50
Rails 2 ft and under	35.50 to 36.00
Angles & splice bars	33.50 to 34.50
Std. steel car axles	28.00 to 29.00
No. 1 cupola cast	35.00 to 36.00
Stove plate	30.50 to 31.50
Cast iron carwheels	30.00 to 31.00

### St. Louis

No. 1 hvy. melting	\$29.00 to \$30.00
No. 2 hvy. melting	24.00 to 25.00
No. 2 bundled sheets	24.00 to 25.00
Machine shop turn.	14.00 to 15.00
Shoveling turnings	18.00 to 19.00
Rails, random lengths	32.00 to 33.00
Rails 3 ft and under	36.00 to 38.00
Locomotive tires, uncut	27.00 to 28.00
Angles and splice bars	35.50 to 36.00
Std. steel car axles	40.00 to 42.00
RR. spring steel	30.00 to 31.00
No. 1 machinery cast	37.00 to 38.00
Hvy. breakable cast	31.00 to 32.00
Cast iron brake shoes	29.00 to 30.00
Stove plate	29.00 to 30.00
Cast iron car wheels	35.00 to 36.00
Malleable	33.00 to 34.00

### New York

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	\$21.00 to \$22.00
No. 2 hvy. melting	17.50 to 18.00
No. 2 bundles	15.50 to 16.50
Machine shop turn	11.00 to 11.50
Mixed bor. and turn.	11.00 to 11.50
Shoveling turnings	13.00 to 13.50
Clean cast chem. bor.	23.00 to 24.00
No. 1 machinery cast	28.00 to 29.00
Mixed yard cast	26.00 to 26.50
Charging box cast	26.00 to 27.00
Heavy breakable cast	26.00 to 27.00
Unstrp. motor blocks	19.50 to 20.00

### Boston

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	\$20.00 to \$20.50
No. 2 hvy. melting	16.50 to 17.00
No. 1 bundles	20.00 to 20.50

No. 2 bundles	\$15.00 to \$15.50
Machine shop turn.	10.75 to 11.25
Mixed bor. and turn.	10.75 to 11.25
Shoveling turnings	13.00 to 13.50
No. 1 busheling	18.00 to 19.00
Clean cast chem. borings	18.00 to 18.50
No. 1 machinery cast	27.00 to 27.50
No. 2 machinery cast	22.00 to 23.00
Heavy breakable cast	22.00 to 23.00
Stove plate	20.00 to 21.00

### Detroit

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	\$23.00 to \$24.00
No. 2 hvy. melting	20.50 to 21.50
No. 1 bundles	25.00 to 26.00
New busheling	23.00 to 24.00
Flashings	23.00 to 24.00
Machine shop turn.	15.50 to 16.00
Mixed bor. and turn.	15.50 to 16.00
Shoveling turnings	17.00 to 18.00
Cast iron borings	17.00 to 18.00
Low phos. plate	25.00 to 26.00
No. 1 cupola cast	33.00 to 34.00
Heavy breakable cast	26.00 to 27.00
Stove plate	27.00 to 28.00
Automotive cast	35.00 to 36.00

### Cincinnati

Per gross ton, f.o.b. cars:

No. 1 hvy. melting	\$26.50 to \$27.00
No. 2 hvy. melting	22.50 to 23.00
No. 1 bundles	26.50 to 27.00
No. 2 bundles	22.50 to 23.00
Machine shop turn.	14.50 to 15.00
Mixed bor. and turn.	15.50 to 16.00
Shoveling turnings	16.50 to 17.00
Cast iron borings	16.50 to 17.00
Low phos. 18 in. under	33.00 to 33.50
Rails, random lengths	34.00 to 34.50
Rails, 18 in. and under	42.00 to 43.00
No. 1 cupola cast	38.00 to 39.00
Hvy. breakable cast	33.00 to 34.00
Drop broken cast	42.00 to 43.00

### San Francisco

No. 1 hvy. melting	\$20.00
No. 2 hvy. melting	18.00
No. 1 bundles	16.00
No. 2 bundles	16.00
No. 3 bundles	13.00
Machine shop turn.	9.00
Elec. fur. 1 ft and under	28.00
No. 1 RR. hvy. melting	20.00
Scrap rails, random lgth.	20.00
No. 1 cupola cast	\$30.00 to 35.00

### Los Angeles

No. 1 hvy. melting	\$20.00
No. 2 hvy. melting	18.00
No. 1 bundles	16.00
No. 2 bundles	16.00
No. 3 bundles	13.00
Mach. shop turn.	9.00
Elec. fur. 1 ft and under	20.00
No. 1 RR. hvy. melting	20.00
No. 1 cupola cast	\$32.50 to 35.00

### Seattle

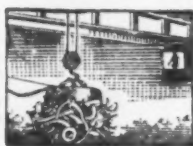
No. 1 hvy. melting	\$18.00
No. 2 hvy. melting	18.00
No. 1 bundles	16.00
No. 2 bundles	16.00
No. 3 bundles	12.00
Elec. fur. 1 ft and under	\$25.00 to 28.00
RR. hvy. melting	19.00
No. 1 cupola cast	30.00
Heavy breakable cast	20.00

### Hamilton, Ont.

No. 1 hvy. melting	\$24.00
No. 1 bundles	16.00
No. 2 bundles	16.00
Mechanical bundles	22.00
Mixed steel scrap	20.00
Mixed bor. and turn.	18.00
Rails, remelting	24.00
Rails, rerolling	27.00
Bushelings	18.50
Bush., new fact, prep'd.	22.00
Bush., new fact, unprep'd.	17.00
Short steel turnings	18.00
Cast scrap	\$40.00 to 43.00

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Iron and Steel Scrap...*

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**LEADERS IN IRON AND STEEL SCRAP SINCE 1889**

## IRON AGE

STEEL  
PRICES

Smaller numbers in price boxes indicate producing companies. For main office locations, see key on facing page.  
Base prices at producing points apply only to sizes and grades produced in these areas. Prices are in cents per lb unless otherwise noted. Extras apply.

	Pittsburgh	Chicago	Gary	Cleveland	Canton Massillon	Middle- town	Youngs- town	Bethle- hem	Buffalo	Conshe- hocken	Johns- town	Spar- rows Point	Granite City	Detroit
<b>INGOTS</b>														
Carbon forging, net ton	\$50.00													\$50.00
Alloy, net ton	\$51.00													\$51.00
	1.17													31
<b>BILLETS, BLOOMS, SLABS</b>														
Carbon, rerolling, net ton	\$53.00	\$53.00	\$53.00				\$57.00		\$53.00	\$58.00	\$53.00			
	1	1	1				13		3	26	3			
Carbon forging billets, net ton	\$63.00	\$63.00	\$63.00	\$63.00			\$63.00		\$63.00	\$65.00	\$63.00			\$63.00
	1	1.4	1.8	4			25		3.4	26	3			31
Alloy, net ton	\$66.00	\$66.00	\$66.00		\$66.00		\$66.00	\$66.00	\$66.00	\$68.00	\$66.00			\$66.00
	1.17	1.4	1		4.42		13	3	3.4	26	3			31
<b>SHEET BARS</b>							\$57.00							
							13							
<b>PIPE SKELP</b>	3.15						3.15							
	1						1.4							
<b>WIRE RODS</b>	3.85	3.85	3.85	3.85			3.85				3.85	3.95		
	2.18	2.4.33	6	2			6				3	3		
<b>SHEETS</b>														
Hot-rolled (18 ga. & hvr.)	3.35	3.35	3.35	3.35			3.35		3.35	3.45		3.35		3.55
	1.5.9.15	23	1.6.8	4.5			1.4.6.13		3	26		3		12
Cold-rolled	4.10 <sup>1-5</sup>		4.10	4.10		4.10	4.10		4.10			4.10	4.30	4.30
	7.9.15.63		1.6.8	4.15		7	4.6		3			3	22	12
Galvanized (10 gage)	4.40		4.40		4.40		4.65 <sup>14</sup> 4.75 <sup>14</sup>					4.40		
	1.9.15		1.8		4							3		
Enameling (12 gage)	4.40		4.40	4.40		4.40	4.40 <sup>6</sup> 4.90 <sup>7.6</sup>						4.60	4.70
	1		1.8	4		7							22	12
Long ternes (10 gage)	4.80		4.80			4.80	4.80							
	9.15		1			7	64							
Hi Str. low alloy, h.r.	5.05	5.05	5.05	5.05			5.05		5.05	5.05		5.05		5.25
	1.5.9	1	1.6.8	4.5			1.4.6.13		3	26		3		12
Hi str. low alloy, c.r.	6.20		6.20	6.20			6.20		6.20			6.20		6.40
	1.5.9		1.6.8	4.5			4.6.13		3			3		12
Hi str. low alloy, galv.	6.75											6.75		
	1											3		
<b>STRIP</b>														
Hot-rolled (over 6 in.)	3.25	3.25	3.25	3.25			3.25		3.25	3.35		3.25		3.45
	5.7.9.28	3.66	1.6.8	5			1.4.6.13		3	26		3		12.47
Cold-rolled	4.15	4.30	4.30	4.15		4.15	4.15		4.15			4.15		4.40 <sup>18.81</sup> 4.35 <sup>12.47</sup>
	5.7.9.63	8.66	8	2.5		7	4.6.13.40.48.49		3			3		
Hi str. low alloy, h.r.	4.95		4.95	4.95			4.95		4.95	4.95		4.95		5.15
	9		1.6.8	5			1.4.6.13		3	26		3		12
Hi Str. low alloy, c.r.	6.20			6.20			6.20		6.20			6.20		6.40
	9			2.5			4.6.13		3			3		12
<b>TINPLATE†</b>														
Cokes, 1.50-lb base box 1.25 lb. deduct 20¢	\$7.50		\$7.50				\$7.50					\$7.60	\$7.70	
	1.5.9.15		1.6.8				4					3	22	
Electrolytic 0.25, 0.50, 0.75 lb box	Deduct \$1.15, 90¢ and 65¢ respectively from 1.50-lb coke base box price													
<b>BLACKPLATE, 29 gage Hollowware enameling</b>	5.30		5.30				5.30					5.40	5.50	
	1.5.15		1.6				4					3	22	
<b>BARS</b>														
Carbon steel	3.45	3.45	3.45	3.45	3.45		3.45		3.45		3.45			3.65
	1.5.9.17	1.4.23	1.6.8	4	4		1.4.6		3.4		3			12
Reinforcing†	3.45	3.45	3.45	3.45			3.45		3.45		3.45	3.45		
	1.5	4	1.6.8	4			1.4.6		3.4		3	3		
Cold-finished	4.10 <sup>5</sup> 4.15 <sup>2-4</sup>	4.15 <sup>2</sup>	4.15	4.15	4.15		4.15		4.15					4.35 <sup>12</sup> 4.30 <sup>14</sup>
	17.52.69.71	23.69.70	4.73.74	2.61	4.82.82		6.40.57		70					
Alloy, hot-rolled	3.95	3.95	3.95		3.95		3.95	3.95	3.95	3.95		3.95		4.25
	1.17	1.4.23	1.6.8		4		1.6.26	3	3.4		3			12
Alloy, cold-drawn	4.90	4.90	4.90	4.90	4.90		4.90	4.90	4.90					5.05 <sup>14</sup>
	2.17.52.69.71	2.23.69.70	4.73.74	2.61	4.42.82		6.25.57	3	3.70					
Hi str. low alloy, h.r.	5.20		5.20	5.20			5.20	5.20	5.20		5.20			5.40
	1.5		1.6.8	4			1.6	3	3		3			12
<b>PLATE</b>														
Carbon steel	3.50	3.50	3.50	3.50			3.50		3.50	3.60	3.50	3.50		3.75
	1.5	1	1.6.8	4			1.12		3	26	3	3		12
Floor Plates	4.55	4.55	4.55	4.55						4.55				
	1	1	3	5						26				
Alloy	4.40	4.40	4.40				4.40			4.40	4.40	4.40		
	1	1	1				13			26	3	3		
Hi Str. low alloy	5.35	5.35	5.35	5.35			5.35			5.35	5.35	5.35		5.60
	1.5	1	1.3	4.5			6			26	3	3		12
<b>SHAPES, Structural</b>									3.45	3.45		3.45		
	1.5.9	1.23	1.6.8						3	3		3		
Hi Str. low alloy	5.15	5.15	5.15				5.15	5.15	5.15		5.15			
	1.5	1	1.6.8				6	3	3		3			
<b>MANUFACTURER'S WIRE</b>														
Bright	4.50	4.50 <sup>2</sup>		4.50			4.50	Kokomo=4.60 <sup>10</sup>			4.50	4.60	Duluth=4.50 <sup>3</sup> Pueblo=4.75 <sup>14</sup>	
	2.5.18	4.12.33.34		2.77			6				3	3		
<b>PILING, Steel Sheet</b>	4.20 <sup>1-9</sup>	4.20							4.20					
	1	1							3					



Smaller numbers indicate producing companies. See key at right.  
Prices are in cents per lb unless otherwise noted. Extras apply.

IRON AGE

## STEEL PRICES

Kansas City	Houston	Birmingham	WEST COAST Seattle, San Francisco, Los Angeles, Fontana	
				INGOTS
				Carbon forging net ton
				Alloy, net ton
	159.00 83			
		553.00 11	F = \$72.00 <sup>10</sup>	
				BILLETS, BLOOMS, SLABS
				Carbon, re-rolling, net ton
				Carbon forging billets, net ton
	571.00 83	563.00 11	F = \$82.00 <sup>10</sup>	
				Alloy net ton
	574.00 83		F = \$85.00 <sup>10</sup>	
			Portsmouth = \$55.00 <sup>20</sup>	SHEET BARS
				PIPE SKELP
	4.25 83	3.85 11	SF = 4.50 <sup>24</sup> LA = 4.65 <sup>24, 62</sup>	WIRE RODS
			Portsmouth = 3.85 <sup>20</sup> Worcester = 4.15 <sup>2</sup>	
		3.35 4.11	SF, LA = 4.05 <sup>24</sup> F = 4.25 <sup>19</sup>	SHEETS
				Hot-rolled (18 ga. & hvr.)
		4.10 11	SF = 5.05 <sup>24</sup> F = 5.00 <sup>19</sup>	Cold-rolled
				Galvanized (10 gage)
		4.40 4.11	SF, LA = 5.15 <sup>24</sup>	Enameling (12 gage)
			Ashland = 4.40 <sup>7</sup> Kokomo = 4.50 <sup>10</sup>	Long ternes (10 gage)
				Hi Str. low alloy, h.r.
		5.05 11	F = 6.74 <sup>19</sup>	Hi Str. low alloy, c.r.
			F = 7.05 <sup>19</sup>	Hi Str. low alloy, galv.
3.85 83	3.85 83	3.25 11	SF, LA = 4.00 <sup>24, 62</sup> F = 4.40 <sup>19</sup> , S = 4.25 <sup>62</sup>	STRIP
				Hot-rolled
			F = 5.40 <sup>19</sup> LA = 5.50 <sup>27</sup>	Cold-rolled
		4.95 11	F = 6.64 <sup>19</sup>	Hi Str. low alloy, h.r.
			F = 6.95 <sup>19</sup>	Hi Str. low alloy, c.r.
		7.60 11	SF = 8.25 <sup>24</sup>	TINPLATE
				Cokes, 1.50-lb base box 1.25 lb, deduct 20¢
Deduct \$1.15, 90¢ and 65¢ respectively from 1.50-lb coke base box price				Electrolytic 0.25, 0.50, 0.75 lb box
				BLACKPLATE, 29 gage Hollowware enameling
4.05 83	3.85 83	3.45 4.11	SF, LA = 4.15 <sup>24</sup> LA = 4.15 <sup>62</sup>	BARS
				Carbon steel
4.05 83	3.85 83	3.45 4.11	SF, S = 4.20 <sup>62</sup> F = 4.10 <sup>19</sup>	Reinforcing†
			Putnam, Newark = 4.55 <sup>60</sup>	Cold-finished
4.55 83	4.35 83		LA = 5.00 <sup>62</sup> F = 4.95 <sup>19</sup>	Alloy, hot-rolled
			Newark, Worcester = 5.20 <sup>60</sup> Hartford = 5.20 <sup>4</sup>	Alloy, cold-drawn
		5.20	F = 6.25 <sup>19</sup>	Hi Str. low alloy, h.r.
	3.90 83	3.50 4.11	F = 4.10 <sup>19</sup> S = 4.40 <sup>62</sup> Geneva = 3.50 <sup>16</sup>	PLATE
				Carbon steel
			Harrisburg = 4.55 <sup>35</sup>	Floor plates,
			F = 5.40 <sup>19</sup>	Alloy
			Coatesville = 4.50 <sup>21</sup>	
		5.35 11	F = 5.95 <sup>19</sup>	Hi Str. low alloy
4.00 83	3.80 83	3.40 11	SF = 3.95 <sup>62</sup> LA = 4.00 <sup>24, 62</sup>	SHAPES, Structural
			Phoenixville = 3.30 <sup>16</sup> Geneva = 3.40 <sup>16</sup>	
		5.15 11	F = 4.00 <sup>19</sup> S = 4.05 <sup>62</sup>	Hi Str. low alloy
5.10 83	4.90 83	4.50 4.11	SF, LA = 5.45 <sup>24, 62</sup>	MANUFACTURER'S WIRE
			Portsmouth = 4.50 <sup>20</sup> Worcester = 4.80 <sup>2</sup>	Bright

Notes: †Special coated mfg ternes deduct \$1.00 from 1.50-lb coke base box price.  
Can-making quality blackplate, 55 to 128-lb, deduct \$1.90 from 1.50-lb coke base box.  
‡Straight lengths only from producer to fabricator.

## KEY TO STEEL PRODUCERS

### With Principal Offices

- 1 Carnegie-Illinois Steel Corp., Pittsburgh
- 2 American Steel & Wire Co., Cleveland
- 3 Bethlehem Steel Co., Bethlehem
- 4 Republic Steel Corp., Cleveland
- 5 Jones & Laughlin Steel Corp., Pittsburgh
- 6 Youngstown Sheet & Tube Co., Youngstown
- 7 Armco Steel Corp., Middletown, Ohio
- 8 Inland Steel Co., Chicago
- 9 Weirton Steel Co., Weirton, W. Va.
- 10 National Tube Co., Pittsburgh
- 11 Tennessee Coal, Iron & R. R. Co., Birmingham
- 12 Great Lakes Steel Corp., Detroit
- 13 Sharon Steel Corp., Sharon, Pa.
- 14 Colorado Fuel & Iron Corp., Denver
- 15 Wheeling Steel Corp., Wheeling, W. Va.
- 16 Geneva Steel Co., Salt Lake City
- 17 Crucible Steel Co. of America, New York
- 18 Pittsburgh Steel Co., Pittsburgh
- 19 Kaiser Co., Inc., Oakland, Calif.
- 20 Portsmouth Steel Corp., Portsmouth, Ohio
- 21 Lukens Steel Co., Coatesville, Pa.
- 22 Granite City Steel Co., Granite City, Ill.
- 23 Wisconsin Steel Co., South Chicago, Ill.
- 24 Columbia Steel Co., San Francisco
- 25 Copperweld Steel Co., Glassport, Pa.
- 26 Alan Wood Steel Co., Conshohocken, Pa.
- 27 Calif. Cold Rolled Steel Corp., Los Angeles
- 28 Allegheny Ludlum Steel Corp., Pittsburgh
- 29 Worth Steel Co., Claymont, Del.
- 30 Continental Steel Corp., Kokomo, Ind.
- 31 Rotary Electric Steel Co., Detroit
- 32 Laclede Steel Co., St. Louis
- 33 Northwestern Steel & Wire Co., Sterling, Ill.
- 34 Keystone Steel & Wire Co., Peoria, Ill.
- 35 Central Iron & Steel Co., Harrisburg, Pa.
- 36 Carpenter Steel Co., Reading, Pa.
- 37 Eastern Stainless Steel Corp., Baltimore
- 38 Washington Steel Corp., Washington, Pa.
- 39 Jessop Steel Co., Washington, Pa.
- 40 Blair Strip Steel Co., New Castle, Pa.
- 41 Superior Steel Corp., Carnegie, Pa.
- 42 Timken Steel & Tube Div., Canton, Ohio
- 43 Babcock & Wilcox Tube Co., Beaver Falls, Pa.
- 44 Reeves Steel & Mfg. Co., Dover, Ohio
- 45 John A. Roebling's Sons Co., Trenton, N. J.
- 46 Simonds Saw & Steel Co., Fitchburg, Mass.
- 47 McLouth Steel Corp., Detroit
- 48 Cold Metal Products Co., Youngstown
- 49 Thomas Steel Co., Warren, Ohio
- 50 Wilson Steel & Wire Co., Chicago
- 51 Sweet's Steel Co., Williamsport, Pa.
- 52 Superior Drawn Steel Co., Monaca, Pa.
- 53 Tremont Nail Co., Wareham, Mass.
- 54 Firth Sterling Steel & Carbide Corp., McKeesport, Pa.
- 55 Ingersoll Steel Div., Chicago
- 56 Phoenix Iron & Steel Co., Phoenixville, Pa.
- 57 Fitzsimmons Steel Co., Youngstown
- 58 Stanley Works, New Britain, Conn.
- 59 Universal-Cyclops Steel Corp., Bridgeville, Pa.
- 60 American Cladmetals Co., Carnegie, Pa.
- 61 Cuyahoga Steel & Wire Co., Cleveland
- 62 Bethlehem Pacific Coast Steel Corp., San Francisco
- 63 Follansbee Steel Corp., Pittsburgh
- 64 Niles Rolling Mill Co., Niles, Ohio
- 65 Atlantic Steel Co., Atlanta
- 66 Acme Steel Co., Chicago
- 67 Joslyn Mfg. & Supply Co., Chicago
- 68 Detroit Steel Corp., Detroit
- 69 Wyckoff Steel Co., Pittsburgh
- 70 Bliss & Laughlin, Inc., Harvey, Ill.
- 71 Columbia Steel & Shaffing Co., Pittsburgh
- 72 Cumberland Steel Co., Cumberland, Md.
- 73 La Salle Steel Co., Chicago
- 74 Monarch Steel Co., Inc., Indianapolis
- 75 Empire Steel Co., Mansfield, Ohio
- 76 Mahoning Valley Steel Co., Niles, Ohio
- 77 Oliver Iron & Steel Co., Pittsburgh
- 78 Pittsburgh Screw & Bolt Co., Pittsburgh
- 79 Standard Forging Corp., Chicago
- 80 Driver Harris Co., Harrison, N. J.
- 81 Detroit Tube & Steel Div., Detroit
- 82 Reliance Div., Eaton Mfg. Co., Massillon, Ohio
- 83 Sheffield Steel Corp., Kansas City
- 84 Plymouth Steel Co., Detroit

## MERCHANT WIRE PRODUCTS

To the dealer, f.o.b. mill

	Base Column Pittsburg, Calif.
Standard & coated nails*	106 125½
Woven wire fence†	116 139
Fence posts, carloads††	116
Single loop bale ties	113 137
Galvanized barbed wire**	126 146
Twisted barless wire	126 146

\* Pgh., Chi., Duluth; Worcester, 6 columns higher; Houston, 8 columns higher; Kansas City, 12 columns higher. † 15½ gage and heavier. \*\* On 80 rod spools, in carloads. †† Duluth, Joliet; Johnstown, 112.

	Base per 100 lb	Pittsburg, Calif.
Merch. wire, annealed†	\$5.35	\$6.30
Merch. wire, galv.†	5.60	6.55
Cut nails, carloads††	6.75	...

† Add 30¢ at Worcester; 20¢ at Chicago; 10¢ at Sparrows Pt.  
†† Less 20¢ to jobbers.  
‡ Torrance, 12¢.

**PRODUCING POINTS**—Standard, Coated or galvanized nails, woven wire fence, bale ties, and barbed wire: Alabama City, Ala., 4; Atlanta, 65; Aliquippa, Pa. (except bale ties), 5; Bartonville, Ill. (except bale ties), 34; Chicago, 4; Donora, Pa., 2; Duluth, 2; Fairfield, Ala., 11; Johnstown, Pa. (except bale ties), 3; Joliet, Ill., 2; Kokomo, Ind., 30; Minnequa, Colo., 14; Monessen, Pa. (except bale ties), 18; Pittsburg, Calif., 24; Portsmouth, Ohio, 20; Rankin, Pa. (except woven fence), 3; Sparrows Point (except woven fence), 3; Sterling, Ill., 33; San Francisco (except nails and woven fence), 14; Torrance, Calif. (nails only), 24; Worcester (nails only), 2; Houston (except bale ties), 83; Kansas City, 83.  
Fence posts: Duluth, 2; Johnstown, Pa., 3; Joliet, Ill., 2; Minnequa, Colo., 14; Moline, Ill., 4; Williamsport, Pa., 51.  
Cut nails: Wheeling, W. Va., 15; Conshohocken, Pa., 26; Warehame, Mass., 53.

## CLAD STEEL

Base prices, cents per pound, f.o.b. mill

	Plate	Sheet
Stainless-carbon		
No. 304, 20 pct.		
Coatesville, Pa. (21)	*25.60	
Washgtn, Pa. (39)	*26.50	
Claymont, Del. (29)	*26.50	
Conshohocken, Pa. (26)	*22.50	
New Castle, Ind. (55)	*26.50	*24.00
Nickel-carbon		
10 pct, Coatesville (26)	27.50	
Inconel-carbon		
10 pct, Coatesville (21)	36.00	
Monel-carbon		
10 pct, Coatesville (21)	29.00	
No. 302 Stainless-copper-stainless, Carnegie, Pa. (60)	75.00	
Aluminized steel sheets, hot dip, Butler, Pa. (7)	7.75	

\* Includes annealing and pickling, or sandblasting.

## ELECTRICAL SHEETS

22 gage, HR cut lengths, f.o.b. mill

	Cents per lb
Armature	6.20
Electrical	6.70
Motor	*7.95
Dynamo	8.75
Transformer 72	9.30
Transformer 65	9.85
Transformer 58	10.55
Transformer 52	11.35

**PRODUCING POINTS**—Beech Bottom, W. Va., 18; Brackenridge, Pa., 28; Follansbee, W. Va., 63; Granite City, Ill., 22\*, add 0.20¢; Indiana Harbor, Ind., 8; Mansfield, Ohio, 75; Niles, Ohio, 64, 76; Vandergrift, Pa., 1; Warren, Ohio, 4; Zanesville, Ohio, 7.

Numbers after producing points correspond to steel producers. See key on Steel Price page.

## BOLTS, NUTS, RIVETS, SET SCREWS

## Consumer Prices

(Bolts and nuts, f.o.b. mill Pittsburgh, Cleveland, Birmingham or Chicago)  
Base discount

## Machine and Carriage Bolts

	Pct Off	Less Case C.
½ in. & smaller x 6 in. & shorter	27	38
9/16 & ¾ in. x 6 in. & shorter	29	40
¾ in. & larger x 6 in. shorter	26	37
All diam., longer than 6 in.	22	34
Lag, all diam over 6 in. & longer	28	39
Lag, all diam x 6 in. & shorter	30	41
Flow bolts	40	—

## Nuts, Cold Punched or Hot Pressed

(Hexagon or Square)

	Pct Off	Less Case C.
½ in. and smaller	25	37
9/16 to ¾ in.	23	35
¾ to 1 ½ in. inclusive	23	35
1 ½ in. and larger	16	29

## Semifinished Hexagon Nuts

(Less case lots)

	Reg	Hvy	Lt
¾ in. and smaller	41	35	41
9/16 to ¾ in.	36	30	36
¾ to 1 ½ in.	31	27	33
1 ½ in. and larger	21	17	—

In full case lots, 15 pct additional discount.

## Stove Bolts

	Pct Off	Less Case C.
Packaged, steel, plain finish	63	—
Packaged, plated finish	50	—
Bulk, plain finish**	69*	—

\* Discounts apply to bulk shipments in not less than 15,000 pieces of a size and kind where length is 3-in. and shorter; 5000 pieces for lengths longer than 3-in. For lesser quantities, packaged price applies.

\*\* Zinc, Parkerized, cadmium or nickel plated finishes add 6¢ per lb net. For black oil finish, add 2¢ per lb net.

## Large Rivets

(½ in. and larger)

	Base per 100 lb
F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham, Lebanon, Pa.	\$7.25

## Small Rivets

(7/16 in. and smaller)

	Pct Off	Less Case C.
F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham	43	—

## Cap and Set Screws

(In bulk)

	Pct Off	Less Case C.
Hexagon head cap screws, coarse or fine thread, ¼ in. thru ¾ in. x 6 in., SAE 1020, bright	60	—
¾ in. through ¾ in. x 6 in. and shorter high C heat treated	54	—
Milled studs	28	—
Flat head cap screws, listed sizes	24	—
Fillister head cap, listed sizes	43	—
Set screws, sq head, cup point, 1 in., diam and smaller x 6 in. and shorter	59	—

## C-R SPRING STEEL

Base per pound f.o.b. mill

0.26 to 0.40 carbon	4.15¢
0.41 to 0.60 carbon	5.95¢
0.61 to 0.80 carbon	6.55¢
0.81 to 1.05 carbon	8.50¢
1.06 to 1.35 carbon	10.80¢
Worcester, add 0.30¢.	

## LAKE SUPERIOR ORES

(51.50% Fe; natural content, delivered lower lake ports)

	Per gross ton
Old range, bessemer	\$8.10
Old range, nonbessemer	7.95
Mesabi, bessemer	7.85
Mesabi, nonbessemer	7.70
High phosphorus	7.70
After Jan. 25, 1950, increases or decreases in Upper Lake rail freight, dock handling charges and taxes are for buyers' account.	

## RAILS, TRACK SUPPLIES

F.o.b. mill

Standard rails, 100 lb and heavier, No. 1 quality, per 100 lb	\$2.40
Joint bars, per 100 lb	4.40
Light rails, per 100 lb	3.75

	Base Price cents per lb
Track spikes†	5.50
Axles	5.25
Screw spikes	8.50
Tie plates	4.30
Tie plates, Pittsburgh, Torr., Calif.*	4.35
Track bolts, untreated**	8.85
Track bolts, heat treated, to railroads**	9.10

\* Seattle, add 30¢.

\*\* Minnequa, deduct 35¢

† Kansas City, 5.85¢.

**PRODUCING POINTS**—Standard rails: Bessemer, Pa., 1; Ensley, Ala., 11; Gary, 1; Indiana Harbor, Ind., 8; Lackawanna, N. Y., 3; Minnequa, Colo., 14; Steelton, Pa., 3.

**Light rails:** All the above except Indiana Harbor and Steelton, plus Fairfield, Ala., 11; Johnstown, Pa., 3; Minnequa, Colo., 14.

**Joint bars:** Bessemer, Pa., 1; Fairfield, Ala., 11; Indiana Harbor, Ind., 8; Joliet, Ill., 1; Lackawanna, N. Y., 3; Steelton, Pa., 3; Minnequa, Colo., 14.

**Track spikes:** Fairfield, Ala., 11; Indiana Harbor, Ind., 6, 8; Lebanon, Pa., 3; Minnequa, Colo., 14; Pittsburgh, 5; Chicago, 4; Struthers, Ohio, 6; Youngstown, 4.

**Track bolts:** Fairfield, Ala., 11; Lebanon, Pa., 3; Minnequa, Colo., 14; Pittsburgh, 7, 78.

**Axles:** Fairfield, Ala., 11; Gary, 1; Indiana Harbor, Ind., 79; Johnstown, Pa., 3; McKees Rocks, Pa., 1.

**Tie plates:** Fairfield, Ala., 11; Gary, 1; Indiana Harbor, Ind., 8; Lackawanna, N. Y., 3; Pittsburgh, Calif., 24; Pittsburgh, 4; Seattle, 62; Steelton, Pa., 3; Torrance, Calif., 24; Minnequa, Colo., 14.

## TOOL STEEL

F.o.b. mill

	W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	—	\$1.00
18	4	1	—	5	—	\$1.565
18	4	2	—	—	—	\$1.13
1.5	4	1.5	8	—	—	71.5¢
6	4	2	6	—	—	76.5¢
High-carbon-chromium						57.5¢
Oil hardened manganese						32¢
Special carbon						29.5¢
Extra carbon						24.5¢
Regular carbon						21¢

Warehouse prices on and east of Mississippi are 2½¢ per lb higher. West of Mississippi, 4½¢ higher.

## COKE

	Net Ton
Furnace, beehive (f.o.b. oven)	
Connellsville, Pa.	\$14.00 to \$14.50
Foundry, beehive (f.o.b. oven)	
Connellsville, Pa.	\$16.00 to \$16.50
Foundry, oven coke	
Buffalo, del'd	\$24.00
Chicago, f.o.b.	21.00
Detroit, f.o.b.	20.40
New England, del'd	22.70
Seaboard, N. J., f.o.b.	22.00
Philadelphia, f.o.b.	20.45
Swedeland, Pa., f.o.b.	20.40
Painesville, Ohio, f.o.b.	21.90
Erie, del'd	\$21.04 to 21.25
Cleveland, del'd	22.6¢
Cincinnati, del'd	22.71
St. Paul, f.o.b.	23.50
St. Louis, del'd	21.60
Birmingham, del'd	19.75

## FLUORSPAR

Washed gravel fluorspar, f.o.b. cars, Rosiclare, Ill. Base price, per ton net; Effective CaF<sub>2</sub> content:

70% or more	\$37.00
60% or less	\$4.00



# STAINLESS STEELS

Base prices, in cents per pound,  
f.o.b. producing point

Product	301	302	303	304	316	321	347	410	418	430
Ingot, re-rolling	12.75	13.50	15.00	14.50	22.75	18.25	20.00	11.25	13.75	11.50
Slabs, billets, re-rolling	17.00	18.25	20.25	19.25	30.25	24.50	26.75	15.90	18.50	15.25
Forg. discs, die blocks, rings	30.50	30.50	33.00	32.00	49.00	36.50	41.00	24.50	25.00	25.00
Billets, forging	24.25	24.25	25.25	25.50	39.00	29.00	32.75	19.50	20.00	20.00
Bars, wire, structurals	29.50	28.50	31.00	30.00	46.00	34.00	38.50	23.00	23.50	23.50
Plates	32.00	32.00	34.00	34.00	50.50	39.50	44.00	26.00	26.50	26.50
Sheets	37.50	37.50	39.50	39.50	53.00	45.50	50.00	33.00	33.50	35.50
Strip, hot-rolled	24.25	25.75	30.00	27.75	46.00	34.50	38.75	21.25	28.00	21.75
Strip, cold-rolled	30.50	33.00	36.50	35.00	55.00	44.90	48.50	27.00	33.50	27.50

Numbers correspond to producers. See Key on Steel Price Page.

**STAINLESS STEEL PRODUCING POINTS**—Sheets: Midland, Pa., 17; Brackenridge, Pa., 28; Butler, Pa., 7; McKeesport, Pa., 1; Washington, Pa., 38, 39; Baltimore, 37; Middletown, Ohio, 7; Massillon, Ohio, 4; Gary, 1; Bridgeville, Pa., 59; New Castle, Ind., 55; Lockport, N. Y., 46.

Strip: Midland, Pa., 17; Cleveland, 2; Carnegie, Pa., 41; McKeesport, Pa., 54; Reading, Pa., 36; Washington, Pa., 38; W. Leechburg, Pa., 28; Bridgeville, Pa., 59; Detroit, 47; Massillon, Canton, Ohio, 4; Middletown, Ohio, 7; Harrison, N. J., 80; Youngstown, 48; Lockport, N. Y., 46; New Britain, Conn., 58; Sharon, 13; Butler, Pa., 7.

Bars: Baltimore, 7; Duquesne, Pa., 1; Munhall, Pa., 1; Reading, Pa., 36; Titusville, Pa., 59; Washington, Pa., 39; McKeesport, Pa., 1, 54; Bridgeville, Pa., 59; Dunkirk, N. Y., 28; Massillon, Ohio, 4; Chicago, 1, 67; Syracuse, N. Y., 17; Watervliet, N. Y., 28; Waukegan, Ill., 2; Lockport, N. Y., 46; Canton, Ohio, 42.

Wire: Waukegan, Ill., 2; Massillon, Ohio, 4; McKeesport, Pa., 54; Bridgeport, Conn., 44; Chicago, 67; Trenton, N. J., 45; Harrison, N. J., 80; Baltimore, 7; Dunkirk, 28.

Structurals: Baltimore, 7; Massillon, Ohio, 4; Chicago, 1, 67; Watervliet, N. Y., 28; Bridgeport, Conn., 44.

Plates: Brackenridge, Pa., 28; Butler, Pa., 7; Chicago, 1; Munhall, Pa., 1; Midland, Pa., 17; New Castle, Ind., 55; Lockport, N. Y., 46; Middletown, 7; Washington, Pa., 39; Cleveland, Massillon, 4.

Forged discs, die blocks, rings: Pittsburgh, 1, 17; Syracuse, 17; Ferndale, Mich., 28. Forging billets: Midland, Pa., 17; Baltimore, 7; Washington, Pa., 39; McKeesport, 54; Massillon, Canton, Ohio, 4; Watervliet, 28; Pittsburgh, Chicago, 1.

# PIPE AND TUBING

Base discounts, f.o.b. mills  
Base price, about \$200.00 per net ton

## Standard, T & C

Steel, Butt-weld*	Black	Galv
1/2-in. ....	40 1/2 to 38 1/2	24 to 22
3/4-in. ....	43 1/2 to 41 1/2	28 to 26
1-in. ....	46 to 44	31 to 29
1 1/4-in. ....	46 1/2 to 44 1/2	31 1/2 to 29 1/2
1 1/2-in. ....	47 to 45	32 to 30
2-in. ....	47 1/2 to 45 1/2	32 1/2 to 30 1/2
2 1/2 to 3-in. ....	48 to 46	33 to 31

## Steel, lapweld

2-in. ....	38	22 1/2
2 1/2 to 3-in. ....	42	26 1/2
3 1/2 to 6-in. ....	43 to 40	27 1/2 to 24 1/2

## Steel, seamless

2-in. ....	36	20 1/2
2 1/2 to 3-in. ....	39	23 1/2
3 1/2 to 6-in. ....	41	25 1/2

## Wrought Iron, butt-weld

1/2-in. ....	+26 1/2	+53
3/4-in. ....	+16 1/2	+42
1 & 1 1/4-in. ....	+10 1/2	+33
1 1/2-in. ....	+4 1/2	+29 1/2
2-in. ....	+4	+29

## Wrought Iron, lapweld

2-in. ....	+13 1/2	+37
2 1/2 to 3 1/2-in. ....	+11	+32 1/2
4-in. ....	+6	+26 1/2
4 1/2 to 8-in. ....	+8	+28
9 to 12-in. ....	+18	+37 1/2

## Extra Strong, Plain Ends

### Steel, butt-weld

1/2-in. ....	39 1/2 to 37 1/2	24 1/2 to 22 1/2
3/4-in. ....	43 1/2 to 41 1/2	28 1/2 to 26 1/2
1-in. ....	45 1/2 to 43 1/2	31 1/2 to 29 1/2
1 1/4-in. ....	46 to 44	32 to 30
1 1/2-in. ....	46 1/2 to 44 1/2	32 1/2 to 30 1/2
2-in. ....	47 to 45	33 to 32
2 1/2 to 3-in. ....	47 1/2 to 45 1/2	33 1/2 to 31 1/2

### Steel, lapweld

2-in. ....	37	22 1/2
2 1/2 to 3-in. ....	42	27 1/2
3 1/2 to 6-in. ....	44 1/2 to 41 1/2	30 to 27

### Steel, seamless

2-in. ....	35	20 1/2
2 1/2 to 3-in. ....	39	24 1/2
3 1/2 to 6-in. ....	42 1/2	28

### Wrought Iron, butt-weld

1/2-in. ....	+22	+47
3/4-in. ....	+15 1/2	+40
1 to 2-in. ....	+5 1/2	+29

### Wrought Iron, lapweld

2-in. ....	+10 1/2	+33 1/2
2 1/2 to 4-in. ....	+1	+22
4 1/2 to 6-in. ....	+5	+26 1/2
7 & 8-in. ....	list	+21 1/2
9 to 12-in. ....	+11 1/2	+29 1/2

For threads only, butt-weld, lap-weld and seamless pipe, one point higher discount (lower price) applies. For plain ends, butt-weld, lap-weld and seamless pipe 3-in. and smaller, three points higher discount (lower price) applies, while for lap-weld and seamless 3 1/2-in. and larger four points higher discount (lower price) applies. On butt-weld and lap-weld steel pipe, jobbers are granted a discount of 5 pct. \*Fontana, Calif., deduct 11 points from figures in left columns.

## BOILER TUBES

Seamless steel and electric welded commercial boiler tubes and locomotive tubes, minimum wall. Prices per 100 ft at mill in carload lots, cut lengths 10 to 24 ft inclusive.

OD gage	Seamless	Electric	Weld
in. BWG	H.R.	C.R.	H.R.
2 1/2 13	\$20.61	\$24.24	\$19.99
3 12	27.71	32.58	26.88
3 12	30.82	36.27	29.90
3 1/2 11	38.52	45.38	37.36
4 10	47.82	56.25	46.39

## CAST IRON WATER PIPE

Per net ton  
6 to 24-in., del'd Chicago. \$91.80 to \$95.30  
6 to 24-in., del'd N. Y. ... 91.00 to 92.00  
6 to 24-in., Birmingham ... 78.00 to 82.50  
6-in. and larger, f.o.b. cars, San Francisco, Los Angeles, for all rail shipment; rail and water shipment less ... \$108.50 to \$113.00  
Class "A" and gas pipe, \$5 extra; 4-in. pipe is \$5 a ton above 6-in.

# REFRACTORIES

(F.o.b. works)

**Fire Clay Brick** Carloads, Per 1000  
First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add \$5) ... \$86.00  
No. 1 Ohio ... 80.00  
Sec. quality, Pa., Md., Ky., Mo., Ill. ... 80.00  
No. 2 Ohio ... 72.00  
Ground fire clay, net ton, bulk (except Salina, Pa., add \$1.50) ... 14.00

## Silica Brick

Mt. Union, Pa., Ensley, Ala. ... \$86.00  
Childs, Pa. ... 90.00  
Hays, Pa. ... 91.00  
Chicago District ... 95.00  
Western, Utah and Calif. ... 101.00  
Super Duty, Hays, Pa., Athens, Tex., Chicago ... 106.00  
Silica cement, net ton, bulk, Eastern (except Hays, Pa.) ... 15.00  
Silica cement, net ton, bulk, Hays, Pa. ... 17.00  
Silica cement, net ton, bulk, Ensley, Ala. ... 16.00  
Silica cement, net ton, bulk, Chicago District ... 16.00  
Silica cement, net ton, bulk, Utah and Calif. ... 22.50

## Chrome Brick

Standard chemically bonded, balt., Chester ... Per Net Ton \$69.00

## Magnesite Brick

Standard, Baltimore ... \$91.00  
Chemically bonded, Baltimore ... 80.00

## Grain Magnesite

St. % -in. grains  
Domestic, f.o.b. Baltimore, in bulk fines removed ... \$56.00 to \$57.00  
Domestic, f.o.b. Chewelah, Wash., in bulk ... 33.00  
in sacks ... 38.00

## Dead Burned Dolomite

F.o.b. producing points in Pennsylvania, West Virginia and Ohio, per net ton, bulk Midwest, add 10¢; Missouri Valley, add 20¢ ... \$12.25

# METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.  
Swedish sponge iron c.i.f. New York, ocean bags ... 7.4¢ to 9.0¢

Domestic sponge iron, 98+ % Fe, carload lots ... 9.0¢ to 15.0¢  
Electrolytic iron, annealed, 99.5+ % Fe ... 31.5¢ to 39.5¢  
Electrolytic iron unannealed, minus 325 mesh, 99+ % Fe ... 48.5¢  
Hydrogen reduced iron, minus 300 mesh, 98+ % Fe ... 63.0¢ to 80.0¢  
Carbonyl iron, size 5 to 10 micros, 98%, 99.8+ % Fe ... 90.0¢ to \$1.75  
Aluminum ... 29.00¢  
Antimony ... 42.53¢  
Brass, 10 ton lots ... 23.25¢ to 26.75¢  
Copper, electrolytic ... 28.625¢  
Copper, reduced ... 28.50¢  
Cadmium ... \$2.40  
Chromium, electrolytic, 99% min. ... \$3.50  
Lead ... 18.50¢  
Manganese ... 55.00¢  
Molybdenum, 99% ... \$2.65  
Nickel, unannealed ... 61.00¢  
Nickel, spherical, minus 30 mesh, unannealed ... 68.00¢  
Silicon ... 34.00¢  
Solder powder ... 8.5¢ plus metal cost  
Stainless steel, 302 ... 75.00¢  
Tin ... 86.50¢  
Tungsten, 99% ... \$2.90  
Zinc, 10 ton lots ... 15.50¢ to 18.25¢

# ELECTRODES

Cents per lb. f.o.b. plant, threaded electrodes with nipples, unboxed

Diam. in in.	Length in in.	Cents Per lb
GRAPHITE		
17, 18, 20	60, 72	16.00¢
8 to 16	48, 60, 72	16.50¢
7	48, 60	17.75¢
6	48, 60	19.00¢
4, 5	40	19.50¢
3	40	20.50¢
2 1/2	24, 30	21.00¢
2	24, 30	23.00¢
CARBON		
40	100, 110	7.50¢
35	65, 110	7.50¢
30	65, 84, 110	7.50¢
24	72 to 104	7.50¢
17 to 20	84, 90	7.50¢
14	60, 72	8.00¢
10, 12	60	8.25¢
8	60	8.50¢



## WAREHOUSE PRICES

Base prices, f.o.b. warehouse, dollars per 100 lb.  
(Metropolitan area delivery, add 20¢ to base price except Birmingham, Cincinnati, Los Angeles, New Orleans (\*), add 15¢; Philadelphia, add 25¢).

CITIES	SHEETS			STRIP		PLATES	SHAPES	BARS		ALLOY BARS			
	Hot-Rolled	Cold-Rolled (18 gage)	Galvanized (10 gage)	Hot-Rolled	Cold-Rolled			Standard Structural	Hot-Rolled	Cold-Finished	Hot-Rolled, A 4615 As-rolled	Hot-Rolled, A 4140-50 Ann.	Cold-Drawn, A 4615 As-rolled
Baltimore	5.05	6.24-6.44 <sup>1</sup>	6.46-6.46 <sup>2</sup>	5.99-5.99 <sup>11</sup>	....	5.20-5.64 <sup>11</sup>	5.49	5.49-5.49 <sup>11</sup>	6.19	9.69	9.99	11.12	11.40
Birmingham*	5.05 <sup>10</sup>	5.80	6.15 <sup>7</sup>	5.10 <sup>10</sup>	....	5.20	5.05	5.00 <sup>10</sup>	6.73	....	....	....	....
Boston	5.73	6.48 <sup>10</sup>	6.79-7.24 <sup>11</sup>	5.78	6.90-6.95	5.88	5.55	5.60	6.02-6.58	9.70-9.97	8.50-10.37	11.15	11.45
Buffalo	5.05	5.80	6.80	5.41	7.27	5.45	5.15	5.05	5.75	9.60	9.90	11.05	11.35
Chicago	5.05	5.80	6.70	5.10	5.45-6.16	5.20	5.05	5.00	5.65	9.25	9.55	10.70	11.00
Cincinnati*	5.32-5.97	5.80-6.24	6.29-6.39	5.49	....	5.59-5.74	5.44-5.59	5.39-5.54	6.10-6.25	9.60-9.81	9.90-10.11	11.05-11.26	11.35-11.56
Cleveland	5.05	5.80	6.85	5.24	6.35	5.32	5.17	5.12	5.75	9.38	9.68	10.81	11.11
Detroit	5.33	6.08	7.09	5.49	6.27-6.58	5.59	5.44	5.39	6.03	9.56	9.86	11.01	11.31
Houston	5.75	....	....	6.10	....	6.00	5.95	6.10	7.80	10.35-10.45	10.50-10.60	11.50	12.10
Indianapolis	....	....	....	....	7.36	....	....	....	....	....	....	....	....
Kansas City	5.65	6.40	7.30	5.70	6.95	5.80	5.65	5.60	6.35	9.85	10.15	11.30	11.60
Los Angeles*	5.80	7.00	7.45 <sup>2</sup>	5.85	7.35-7.85 <sup>16</sup>	5.80	5.70	5.80	7.55-8.51	10.05	10.20	11.70	12.10
Memphis	5.93	6.68	....	5.96	6.90	6.08	5.93	5.88	....	....	....	....	....
Milwaukee	5.19	5.94	6.84	5.24	6.32	5.34	....	5.14	5.89	9.39	9.69	10.84	11.14
New Orleans*	5.50 <sup>1</sup>	6.85 <sup>1</sup>	....	5.55 <sup>1</sup>	6.90 <sup>1</sup>	5.65	5.55 <sup>1</sup>	5.55 <sup>1</sup>	6.75	....	....	....	....
New York	5.55-5.65	6.54-6.84	6.90-7.00	5.84	6.76 <sup>3</sup>	5.70	5.45	5.65	6.44	9.60	9.90	11.05	11.35
Norfolk	6.10	7.00	....	6.30	....	6.15	6.20	6.15	7.20	....	....	....	....
Omaha	....	....	....	....	....	....	....	....	....	....	....	....	....
Philadelphia*	5.30	6.20	6.70	5.65	6.29	5.45	5.25	5.50	6.31	9.35	9.65	10.80	11.10
Pittsburgh	5.05	5.80	6.70	5.20	6.00	5.20	5.05	5.00	5.75	9.25	9.55	10.70	11.00
Portland	6.60-7.10 <sup>1</sup>	8.40 <sup>2</sup>	8.20 <sup>2</sup>	6.85 <sup>3</sup>	....	6.40 <sup>3</sup>	6.50	6.45-6.45 <sup>3</sup>	8.60 <sup>14</sup>	12.00 <sup>18</sup>	11.60 <sup>18</sup>	....	....
Salt Lake City	5.85	6.70	8.75	7.45	8.75	6.10 <sup>3</sup>	5.90	7.35 <sup>3</sup>	8.75	....	....	....	....
San Francisco	6.25 <sup>11</sup>	7.60 <sup>2</sup>	7.50 <sup>2</sup>	6.75 <sup>11</sup>	8.25	6.15 <sup>11</sup>	6.00	6.15 <sup>11</sup>	7.80	10.05	10.20	11.70	12.10
Seattle	6.70 <sup>1</sup>	8.15 <sup>2</sup>	8.20 <sup>2</sup> -8.35 <sup>2</sup>	6.90 <sup>1</sup>	....	.35 <sup>4</sup>	6.25 <sup>4</sup>	6.35 <sup>4</sup>	8.50 <sup>14</sup>	....	11.60 <sup>18</sup>	....	13.50 <sup>18</sup>
St. Louis	5.38	6.13	7.03	5.43	6.68-7.54	5.53	5.38	5.33-5.35	6.08	9.58	9.88	11.03	11.33
St. Paul	5.75	6.51	7.41	5.81	6.16-6.82	5.91	5.76	5.71	6.42	9.96	10.26	11.41	11.71

## BASE QUANTITIES: (Standard unless otherwise keyed on prices).

Hot-rolled sheets and strip, hot rolled bars and bar shapes, structural shapes, plate, galvanized sheets and cold-rolled sheets: 2000 to 9999 lb. Cold-finished bars: 1000 lb or over. Alloy bars: 1000 to 1999 lb.

All HR products may be combined to determine quantity bracket. All galvanized sheets may be combined to determine quantity bracket. CR sheets may not be combined with each other or with galv. sheets to determine quantity bracket.

## Exceptions:

(1) 400 to 1499 lb; (2) 450 to 1499 lb; (3) 300 to 4999 lb; (4) 300 to 9999 lb; (5) 2000 to 5999 lb; (6) 1000 lb and over; (7) 500 to 1499 lb; (8) 400 lb and over; (9) 400 to 9999 lb; (10) 500 to 9999 lb; (11) 400 to 3999 lb; (12) 450 to 3749 lb; (13) 400 to 1999 lb; (14) 1500 lb and over; (15) 1000 to 9999 lb; (16) 6000 lb and over; (17) up to 1999 lb; (18) 1000 to 4999 lb; (19) 1500 to 3499 lb; (20) CR sheets may be combined for quantity; (21) 3 to 24 bundles.

## PIG IRON PRICES

Dollars per gross ton. Delivered prices do not include 3 pct tax on freight.

PRODUCING POINT PRICES						DELIVERED PRICES (BASE GRADES)							
Producing Point	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.	Consuming Point	Producing Point	Rail Freight Rate	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.
Bethlehem	46.00	48.50	49.00	49.50		Boston	Everett	\$0.50 Arb.		50.50	51.00		
Birmingham	41.88	42.38				Boston	Steelton	6.90					60.00
Buffalo	46.00	46.50	47.00			Brooklyn	Bethlehem	4.29		52.79	53.29	53.79	
Chicago	46.00	46.50	46.50	47.00		Cincinnati	Birmingham	6.70	48.58	49.08			
Cleveland	46.00	46.50	46.50	47.00	51.00	Jersey City	Bethlehem	2.63		51.13	51.63	52.13	
Culuth	46.00	46.50	46.50	47.00		Los Angeles	Geneva-Ironton	7.70	53.70	54.20			
Erie	46.00	46.50	46.50	47.00		Mansfield	Cleveland-Toledo	3.33	49.33	49.83	49.83	50.33	54.33
Everett		50.50	51.00			Philadelphia	Bethlehem	2.39	50.39	50.89	51.39	51.89	
Granite City	47.90	48.40	48.90			Philadelphia	Swedeland	1.44	49.44	49.94	50.44	50.94	
Ironton, Utah	46.00	46.50				Philadelphia	Steelton	3.09					57.00
Pittsburgh	46.00	46.50	46.50	47.00		Recheater	Buffalo	2.63	48.63	49.13	49.63		
Geneva, Utah	46.00	46.50				San Francisco	Geneva-Ironton	7.70	53.70	54.20			
Sharpville	46.00	46.50	46.50	47.00		Seattle	Geneva-Ironton	7.70	53.70	54.20			
Steelton	48.00	48.50	49.00	49.50	54.00	St. Louis	Granite City	0.75 Arb.	48.65	49.15	49.65		
Struthers, Ohio	46.00					Syracuse	Buffalo	3.58	49.58	50.08	50.58		
Swedeland	48.00	48.50	49.00	49.50									
Toledo	46.00	46.50	46.50	47.00									
Troy, N. Y.	48.00	48.50	49.00		54.00								
Youngstown	46.00	46.50	46.50	47.00									

Producing point prices are subject to switching charges; silicon differential (not to exceed 50¢ per ton for each 0.25 pct silicon content in excess of base grade which is 1.75 to 2.25 pct for foundry iron); phosphorus differentials, a reduction of 38¢ per ton for phosphorus content of 0.70 pct and over manganese differentials, a charge not to exceed 50¢ per ton for each 0.50 pct manganese

content in excess of 1.00 pct. \$2 per ton extra may be charged for 0.5 to 0.75 pct nickel content and \$1 per ton extra for each additional 0.25 pct nickel.

Silvery iron (blast furnace) silicon 6.01 to 6.50 pct C/L per g.t., f.o.b. Jackson, Ohio—\$57.00; f.o.b. Buffalo, \$58.25. Add \$1.00 per ton for each additional 0.50 pct Si up to 17 pct.

Add 50¢ per ton for each 0.50 pct Mn over 1.00 pct. Add \$1.00 per ton for 0.75 pct or more P. Bessemer ferro-silicon prices are \$1.00 per ton above silvery iron prices of comparable analysis.

Charcoal pig iron base price for low phosphorus \$60.00 per gross ton, f.o.b. Lyle, Tenn. Delivered Chicago, \$68.50. High phosphorus charcoal pig iron is not being produced.

## FERROALLOYS

## Ferromanganese

78-82% Mn. maximum contact base price, gross ton, lump size.	
F.o.b. Birmingham	\$174
F.o.b. Niagara Falls, Alloy, W. Va., Welland, Ont.	\$172
F.o.b. Johnstown, Pa.	\$174
F.o.b. Sheridan, Pa.	\$172
F.o.b. Etna, Clairton, Pa.	\$175
\$2.00 for each 1% above 82% Mn. penalty, \$2.15 for each 1% below 78%.	
Briquets—Cents per pound of briquet, delivered, 66% contained Mn.	
Carload, bulk	10.45
Ton lots	12.05
Less ton lots	12.95

## Spiegeleisen

Contract prices gross ton, lump, f.o.b.	
16-19% Mn 19-21% Mn	
3% max. Si 3% max. Si	
Palmerton, Pa.	\$64.00 \$65.00
Pgh. or Chicago	65.00 66.00

## Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal, delivered.	
96% min. Mn, 0.2% max. C, 1% max. Si, 2% max. Fe.	
Carload, packed	35.5
Ton lots	37.0

## Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.	
Carloads	28
Ton lots	30
Less ton lots	32

## Low-Carbon Manganese

Contract price, cents per pound Mn contained, lump size, delivered.	
Carloads Ton Less	
0.07% max. C, 0.06% P, 90% Mn	25.25 27.10 28.30
0.10% max. C	24.75 26.60 27.80
0.15% max. C	24.25 26.10 27.30
0.30% max. C	23.75 25.60 26.80
0.50% max. C	23.25 25.10 26.30
0.75% max. C	
7.00% max. Si	20.25 22.10 23.30

## Silicomanganese

Contract basis, lump size, cents per pound of metal, delivered, 65-68% Mn, 18-20% Si, 1.5% max. C. For 2% max. C, deduct 0.2¢.	
Carload bulk	8.95
Ton lots	10.60
Briquet, contract basis carlots, bulk delivered, per lb of briquet	10.30
Ton lots	11.90
Less ton lots	12.80

## Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct, f.o.b. Keokuk, Iowa, or Wenatchee, Wash., \$77.00 gross ton, freight allowed to normal trade area; Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., \$73.50. Add \$1.00 per ton for each additional 0.50% Si up to and including 18%. Add \$1.00 for each 0.50% Mn over 1%.	
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## Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, for ton lots packed.	
96% Si, 2% Fe	20.70
97% Si, 1% Fe	21.10

## Silicon Briquets

Contract price, cents per pound of briquet, bulk, delivered, 40% Si, 1 lb Si briquets.	
Carload, bulk	6.30
Ton lots	7.90
Less ton lots	8.80

## Electric Ferrosilicon

Contract price, cents per pound contained Si, lump, bulk, carloads, delivered.	
25% Si	17.00
50% Si	11.30
75% Si	13.50
85% Si	14.65
90-95% Si	16.50

## Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.	
Cast Turnings Distilled	
Ton lots	\$2.05 \$2.95 \$3.75
Less ton lots	2.40 3.30 4.55

## Ferrocchrome

Contract prices, cents per pound, contained Cr, lump size, bulk, in carloads, delivered. (65-72% Cr, 2% max Si.)	
0.06% C	25.75
0.10% C	28.25
0.15% C	28.00
2.00% C	27.00
65-69% Cr, 4-9% C	20.50
62-66% Cr, 4-6% C, 6-9% Si	21.35

## High-Nitrogen Ferrocchrome

Low-carbon type: 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrocchrome price schedule. Add 5¢ for each additional 0.25% N.	
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## S. M. Ferrocchrome

Contract price, cents per pound chromium contained, lump size, delivered.	
High carbon type: 60-65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.	
Carloads	21.60
Ton lots	23.75
Less ton lots	25.25
Low carbon type: 62-66% Cr, 4-6% Si, 4-6% Mn, 1.25% max. C.	
Carloads	27.75
Ton lots	30.05
Less ton lots	31.85

## Chromium Metal

Contract prices, per lb chromium contained packed, delivered, ton lots.	
97% min. Cr, 1% max. Fe.	
0.20% max. C	\$1.09
0.50% max. C	1.05
9.00 min. C	1.04

## Low Carbon Ferrocchrome Silicon

(Cr 34-41%, Si 42-49%, C 0.05% max.)	
Contract price, carloads, f.o.b. Niagara Falls, freight allowed: lump 4-in. x down, bulk 2-in. x down, 20.50¢ per lb of contained Cr plus 11.30¢ per lb of contained Si.	
Bulk 1-in. x down, 20.65¢ per lb contained Cr plus 11.50¢ per lb contained Si.	

## Calcium-Silicon

Contract price per lb of alloy, lump, delivered.	
30-33% Ca, 60-65% Si, 3.00% max. Fe.	
Carloads	17.90
Ton lots	21.00
Less ton lots	22.50

## Calcium-Manganese-Silicon

Contract prices, cents per lb of alloy, lump, delivered.	
16-20% Ca, 14-18% Mn, 53-59% Si.	
Carloads	19.25
Ton lots	21.55
Less ton lots	22.55

## CMSZ

Contract price, cents per pound of alloy, delivered.	
Alloy 4: 45-49% Cr, 4-6% Mn, 18-21% Si, 1.25-1.75% Zr, 3.00-4.5% C.	
Alloy 5: 50.56% Cr, 4-6% Mn, 13.50-16.00% Si, 0.75 to 1.25% Zr, 3.50-5.00% C.	
Ton lots	19.75
Less ton lots	21.00

## V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. V-5: 33-42% Cr, 17-19% Si, 8-11% Mn.	
Ton lots	15.75¢
Less ton lots	17.00¢

## Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.	
Carload packed	17.00¢
Ton lots to carload packed	18.00¢
Less ton lots	19.50¢

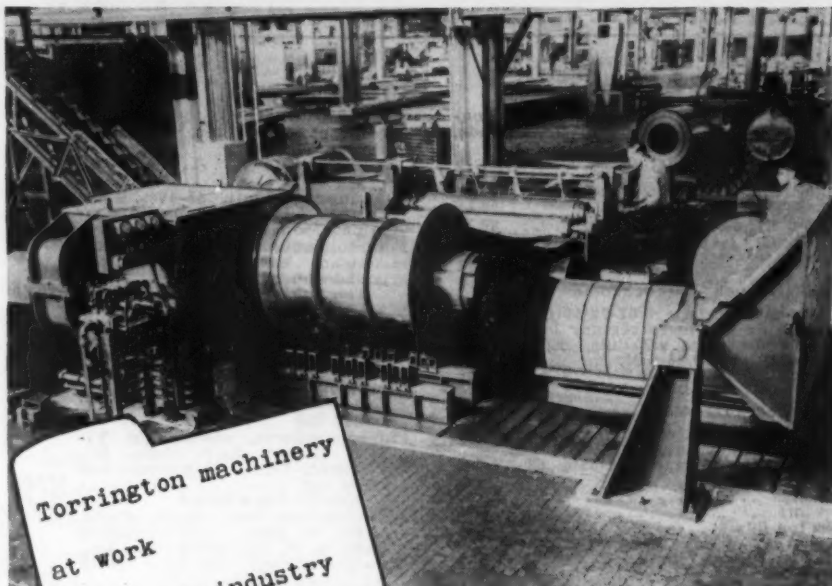
## SMZ

Contract price, cents per pound of alloy, delivered. 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe, ½ in. x 12 mesh.	
Ton lots	17.25
Less ton lots	18.50

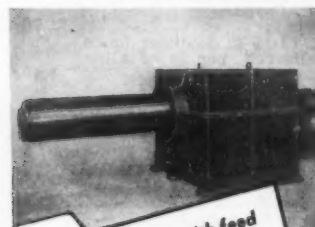
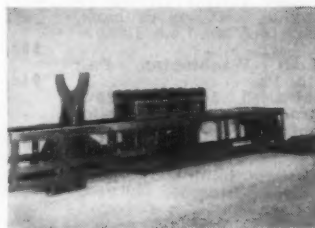
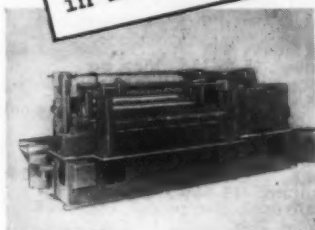
## Other Ferroalloys

Alsifer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.	
Carload	7.65¢
Ton lots	9.05¢
Calcium molybdate, 45-40%, f.o.b. Langeloth, Pa., per pound contained Mo	96¢
Ferrocolumbium, 50-60%, 2 in. x D, contract basis, delivered, per pound contained Cb.	
Ton lots	\$3.50
Less ton lots	3.55
Ferro-Tantalum-columbium, 20% Ta, 40% Cb, 0.30 C. Contract basis, delivered, ton lots, 2 in. x D, per lb of contained Cb plus Ta	\$2.67
Ferromolybdenum, 55-75%, f.o.b. Langeloth, Pa., per pound contained Mo	\$1.13
Ferrophosphorus, electrolytic, 23-26%, carlots, f.o.b. Siglo, Mt. Pleasant, Tenn., \$3 unitage, per gross ton	\$65.00
10 tons to less carload	75.00
Ferrotitanium, 40%, regular grade, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti	\$1.28
Ferrotitanium, 25%, low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti	\$1.40
Less ton lots	1.45
Ferrotitanium, 15 to 19%, high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carloads per net ton	\$160.00
Ferrotungsten, standard, lump or ½ x down, packed, per pound contained W, 5 ton lots, delivered	\$2.35
Ferrovanadium, 35-55%, contract basis, delivered, per pound, contained V.	
Openhearth	\$2.90
Crucible	3.00
High speed steel (Primox)...	3.10
Molybdc oxide, briquets or cans, per lb contained Mo, f.o.b. Langeloth, Pa.	95¢
bags, f.o.b. Washington, Pa.	94¢
Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per pound	
Carload, bulk, lump	11.00¢
Ton lots, bulk, lump	11.50¢
Less ton lots, lump	12.25¢
Vanadium pentoxide, 88-92% V <sub>2</sub> O <sub>5</sub> , contract basis, per pound contained V <sub>2</sub> O <sub>5</sub>	\$1.20
Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy.	
Ton lots	21.00¢
Zirconium, 12-15%, contract basis, lump, delivered, per lb of alloy.	
Carload, bulk	6.60¢
Boron Agents	
Contract prices, per lb of alloy, del.	
Borosil, f.o.b. Philo, Ohio, freight allowed, B 3-4%, Si 40-45%, per lb contained B	\$4.25
Bortam, f.o.b. Niagara Falls	
Ton lots, per pound	45¢
Less ton lots, per pound	50¢
Carbortam, f.o.b. Suspension Bridge, N. Y.; freight allowed, Ti 15-18%, B 1.00-1.50%, Si 2.5-3.0%, Al 1.0-2.0%.	
Ton lots, per pound	8.625¢
Ferroboreon, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D. Ton lots	\$1.20
F.o.b. Wash., Pa.; 100 lb, up	
10 to 14% B	.75
14 to 19% B	1.20
19% min. B	1.50
Grainal, f.o.b. Bridgeville, Pa., freight allowed, 100 lb and over.	
No. 1	93¢
No. 6	63¢
No. 79	45¢
Manganese-Boron 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, delivered.	
Ton lots	\$1.67
Less ton lots	1.79
Nickel-Boron 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, delivered.	
Less ton lots	\$1.80
Silicaz, contract basis, delivered.	
Ton lots	45.00¢





Torrington slitter at work in plant.



Top: Slitter part with feed rolls. Next: Stripper and elevator carriage. Last: Winder.

## Torrington's Latest Slitting Equipment in Newest Plant of ALUMINUM COMPANY OF AMERICA

The newly constructed plant of Aluminum Company of America, Davenport, Iowa, houses the last word in slitting equipment by Torrington. This heavy duty machinery combines famous Torrington standards—advanced design—dependable accuracy plus ability to withstand abuse under exacting heavy service. This unit contains feed rolls, slitter, scrap chopper, winder, collapsible block, stripper, elevator carriage upender and scrap conveyor. Outstanding features are:

- Speed as high as 1200 feet per minute
- Rugged, heavy construction for mill production service
- Anti-friction bearings
- Air-operated clutches to allow either pull-through or positive drive operation of slitter
- Swing shelf for inter slitter housing for ease of changing cutter set-ups
- Scrap chopper driver from independent motor
- Power expansion of collapsible block
- Stripping and upending by power

Call or write Torrington today for information and name of nearest Torrington representative

# THE TORRINGTON

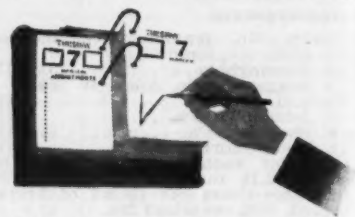
MANUFACTURING COMPANY TORRINGTON, CONNECTICUT

DESIGNERS AND BUILDERS OF MILL MACHINERY FOR OVER 60 YEARS



## • News of Industry •

### Dates to Remember



Apr. 3-4—Assn. of Iron & Steel Engineers, spring conference, Birmingham. Association headquarters are at 1010 Empire Bldg., Pittsburgh.

Apr. 4—Society for Applied Spectroscopy, meeting, Socony-Vacuum Training Center, New York. Society secretary is Ruth Abbott, American Cyanamid Co., Bound Brook, N. J.

Apr. 4-7—National Assn. of Corrosion Engineers, annual conference, Hotel Jefferson, St. Louis. Association headquarters are in Milam Bldg., Houston.

Apr. 5-7—Midwest Power Conference, Sherman Hotel, Chicago. Conference director is Roland A. Budenholzer, Illinois Institute of Technology, 3300 S. Federal St., Chicago.

Apr. 10-12—American Institute of Mining & Metallurgical Engineers, annual open-hearth, blast furnace, coke oven and raw materials conference, Netherland Plaza Hotel, Cincinnati. AIME headquarters are at 29 W. 39th St., New York.

Apr. 10-12—American Society of Lubrication Engineers, annual convention, Hotel Statler, Detroit. Society headquarters are at 343 S. Dearborn St., Chicago.

Apr. 10-14—American Society of Tool Engineers, industrial cost-cutting exposition, Philadelphia Convention Hall, Philadelphia. Society headquarters are at 10700 Puritan Ave., Detroit.

Apr. 11-12—American Zinc Institute, annual meeting, Hotel Statler, St. Louis. Institute headquarters are at 60 E. 42nd St., New York.

Apr. 12-14—American Society of Mechanical Engineers, spring meeting, Hotel Statler, Washington. Society headquarters are at 29 W. 39th St., New York.

Apr. 13-14—American Machine Tool Distributors Assn., spring meeting, Edgewater Beach Hotel, Chicago. Association secretary is Thos. A. Fernley, Jr., 505 Arch St., Philadelphia.

Apr. 25-26—Metal Powder Assn., annual metal powder show, Book-Cadillac Hotel, Detroit. Association headquarters are at 420 Lexington Ave., New York.

Apr. 27-28—American Steel Warehouse Assn., annual meeting, Shamrock Hotel, Houston. Association headquarters are at 442 Terminal Tower, Cleveland.

May 4-5—National Machine Tool Builders' Assn., spring meeting, Edgewater Beach Hotel, Chicago. Association headquarters are at 10525 Carnegie Ave., Cleveland.

May 8-12—American Foundrymen's Society, annual convention and exhibition, Public Auditorium, Cleveland. Society headquarters are at 222 W. Adams St., Chicago.

May 22-24—American Supply & Machinery Manufacturers' Assn., industrial supply convention, Convention Hall, Atlantic City, N. J. Association headquarters are at 1108 Clark Bldg., Pittsburgh.

Oct. 23-27—National Metal Congress & Exposition, International Amphitheater, Chicago. American Society for Metals headquarters are at 7301 Euclid Ave., Cleveland.



# WHAT PRICE TAG ON YOUR PENSION PLAN?

If you are a pension-conscious employer, you are undoubtedly pension *price*-conscious.

It is important that you get the maximum benefit at a minimum cost.

Our Trust Department, with its extensive background of trust fund management, is well qualified to examine your overall cost potential. Perhaps the solution in your case—as it has been with a great many other businesses—is a pension plan trusted with Chemical.

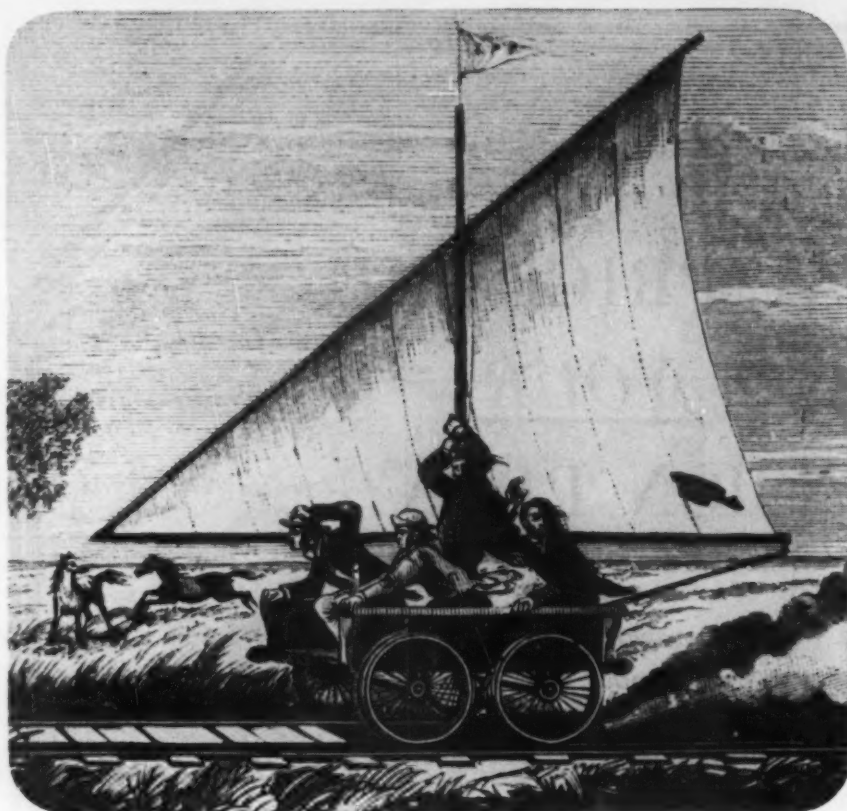
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*"Retirement Plan Guidebook."*

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The Bettmann Archive

## Sails on Rails

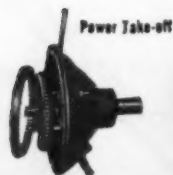
This wind wagon of the 19th Century looks weirdly out of place in our age of streamliners and silver wings. Yet, it is an example of many of the early but generally impractical ideas that were explored in the endless search for better power to move machines.

Paralleling man's search for better power has been his equally determined hunt for better ways to transmit power. And like the wind wagon, many power transmission ideas have left much to be desired.

But tackling and solving problems

of power transmission... finding practical, more efficient methods of harnessing power... has been a specialty with the Twin Disc Clutch Company for 31 years.

Today, wherever power is applied... in all types of construction, lumber, petroleum, farm equipment, marine and machine tool applications... Twin Disc "know-how" has perfected a *proved* product to handle the job. TWIN DISC CLUTCH COMPANY, Racine, Wisconsin (Hydraulic Division, Rockford, Illinois).



Power Take-off



Machine Tool Clutch



Marine Gear



SPECIALISTS IN INDUSTRIAL CLUTCHES SINCE 1918

# FREE

## PUBLICATIONS

Continued from Page 34

hensive corrosion data charts, are presented in a new 16-p. brochure. Nooter Corp. For more information, check No. 12 on the postcard on p. 35.

### Asphalt Mastic Flooring

Acid-resisting, waterproof, slip-proof and wearing qualities of Rulon asphalt mastic floors for every industrial need are presented in an 8-p. illustrated catalog. Ralph V. Rulon, Inc. For more information, check No. 13 on the postcard on p. 35.

### Fire Brick

The variety of stock shapes and sizes of Laclede Keystone high heat duty dry press fire brick are shown in a 6-p. folder, which also lists such specialties as cements, plastics, castables and coatings. Laclede-Christy Co. For more information, check No. 14 on the postcard on p. 35.

### Stitching Machine

Advantages of metal stitching for fastening cartons are outlined in a 12-p. booklet describing Acme Silverstitchers and Silverstitch wire. Acme Steel Co. For more information, check No. 15 on the postcard on p. 35.

### Coolant Separator

General construction and operating features of various types of Barnesdril magnetic coolant separators are presented in a 16-p. booklet showing typical installations and dimensional layouts. Barnes Drill Co. For more information, check No. 16 on the postcard on p. 35.

### Drawing Compound

Houghto-Draw 357 is a new drawing compound for use in the cold drawing of hot or cold rolled bars or rods, as described on a new data sheet. E. F. Houghton & Co. For more information, check No. 17 on the postcard on p. 35.

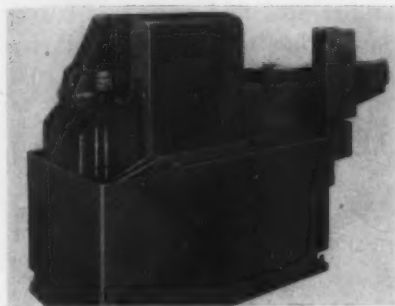
Resume Your Reading on Page 35

# NEW

## PRODUCTION IDEAS

Continued from Page 38

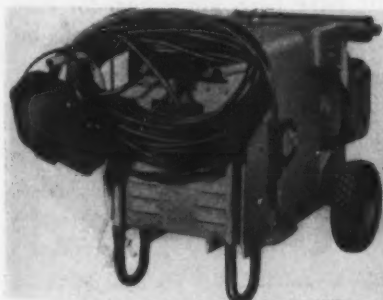
retracting automatically by positive cam operation. When arranged as an automatic bar feed machine, a magazine stock loader can be provided. The entire cycle of the double spindle machine is actuated



mechanically by a single cam shaft. Spindles are driven by individual V-belt motor drives. The welded steel base contains coolant sump and chip compartment. *Motch & Merryweather Machinery Co.* For more information, check No. 32 on the postcard on p. 35.

### Are Welder-Power Plant

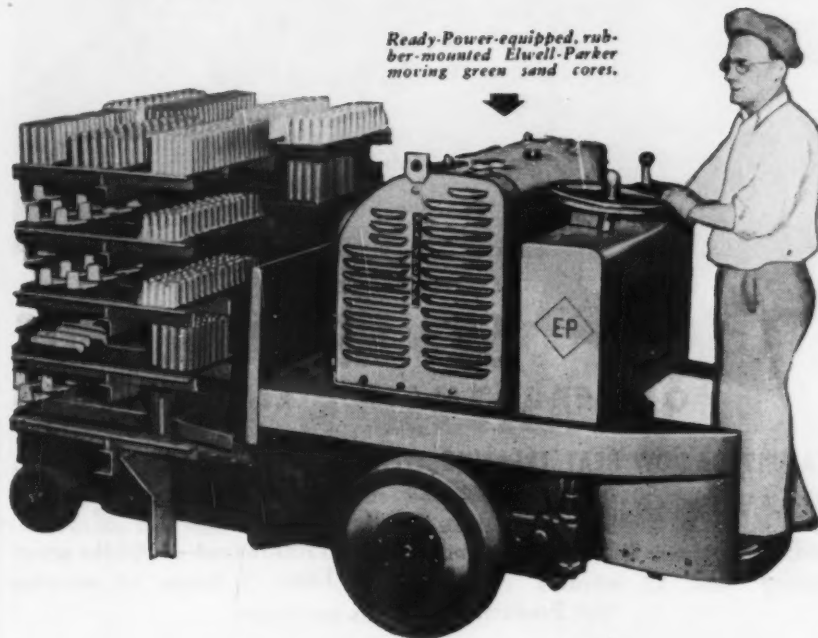
A new engine driven combination ac arc welder and 3 kw power plant is available as a stationary model or a portable unit on a rubber-tired truck. For welding, the unit will



handle ac or ac-dc electrodes from 1/16 to 3/16 in., delivering a full 200 amp welding current. For power, the machine provides 3 kw-110/220 v ac, 60 cycle, single phase current. Changing from welding generator to power plant is accomplished by a conveniently located switch. The generator is

# READY-POWER for smooth operation

Ready-Power-equipped, rubber-mounted Elwell-Parker moving green sand cores.



If it's smooth, electric truck operation you want, there's nothing better than Ready-Power gas-electric Power Units. Ready-Power offers *more* than regular electric truck operation because dependable electric current is generated right on the truck chassis in unlimited amounts. That means trucks are always ready to operate at top efficiency . . . 'round the clock if necessary. Install Ready-Power Units on any make electric truck. Write for details.

Ready-Power-equipped Mercury truck loading an annealing oven.



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THE **READY-POWER** CO.

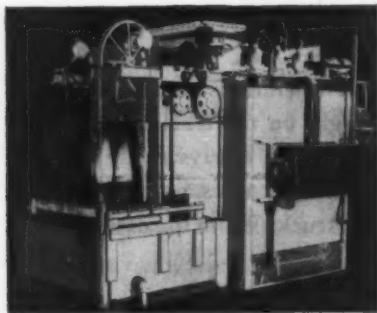




## DOW continues to SET NEW RECORDS OF PERFORMANCE AND SAVINGS

**EXAMPLE OF DOW HEAT TREATING EFFICIENCY AT WARNER GEAR DIV.**  
Heat Treatment: .020"—.022" effective case, Carbonitrided 1600°F, Oil Quench, File Hard

Load: 2000 Rocker Shafts bulk loaded 12" deep, 1200-lbs net—1500-lbs gross  
Heating Time: 55 minutes Total Furnace Time: 3 hours 15 minutes  
Net Production: 370-lbs per hour



With only a fraction of the operator's time required at the furnace for loading work containers, charging the furnace and quenching the load, substantial savings in direct labor are realized. Consistent uniformity of hardness and case depth, freedom from salt film, scale and decarb, and reduced distortion improve quality and lower cleaning, straightening and inspection costs. This is only one of many case histories demonstrating savings which have amortized Dow Furnaces in a few months!

### DOW FURNACE OFFERS

- Gas cyaniding for  $\frac{1}{3}$  to  $\frac{1}{4}$  the cost of liquid cyaniding
- Uniformity of light case depths throughout load
- Unmatched versatility—gas cyaniding, gas carburizing, clean hardening or carbon restoration
- Improved quality. Forced, uniform quenching gives full hardness, reduced distortion.
- Maximum capacity with minimum investment and floor space

**FIRST**  
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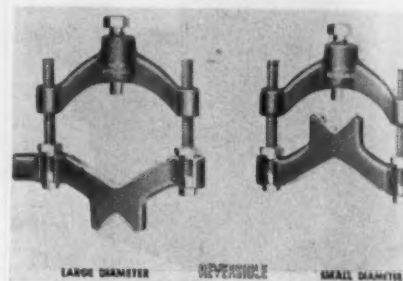
### NEW PRODUCTION IDEAS

*Continued*

powered by the Onan 2-cylinder, 4-cycle air cooled engine and is lightweight. The high cycle ac current will thaw pipes. *Miller Electric Mfg. Co. For more information, check No. 33 on the postcard on p. 35.*

#### Reversible Dog

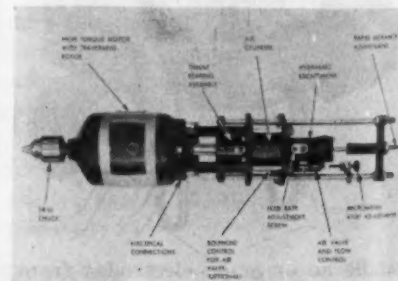
Fitting all makes of cylindrical grinding machines, a reversible dog, made of drop forge steel, will not break. It is perfectly balanced,



has side nuts for locking adjustments and has a reversible jaw. Screws and nuts are hardened and the entire unit is rustproof. Tips and plates are of brass to protect the work. The Red E reversible dog comes in 5 sizes to accommodate capacities from  $\frac{1}{4}$  to 6 in. *Ready Tool Co. For more information, check No. 34 on the postcard on p. 35.*

#### Self-contained Drill

Parts of the No. 1000 Model automatic self-contained drilling unit have been simplified for ease of adjustment and maintenance. In-



line construction gives balanced action, and force is loaded evenly throughout. Pressure is exerted in a continuous straight line. The motor shaft, which is integral with the rotor, is the only rotating member. All adjustments for feed rate,

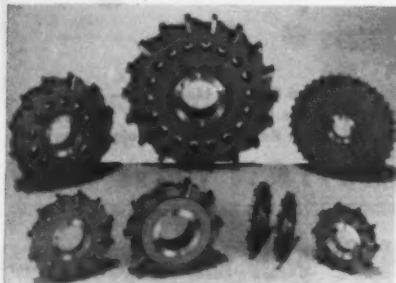
## NEW PRODUCTION IDEAS

*Continued*

length of stroke, depth control, and rapid advance are quickly made while units are operating, through three adjusting screws. Units may be operated in any position at any angle, for single or multiple-setup work. **Black Drill Co.** For more information, check No. 35 on the postcard on p. 35.

### Milling Cutters

New inserted tooth milling cutters for slotting and side milling use blades that are standard carbide blanks. These blanks are held in the body with a simple taper wedge, and only diamond wheels are necessary for sharpening. Many blades can be inserted in the body even on small diameter cut-

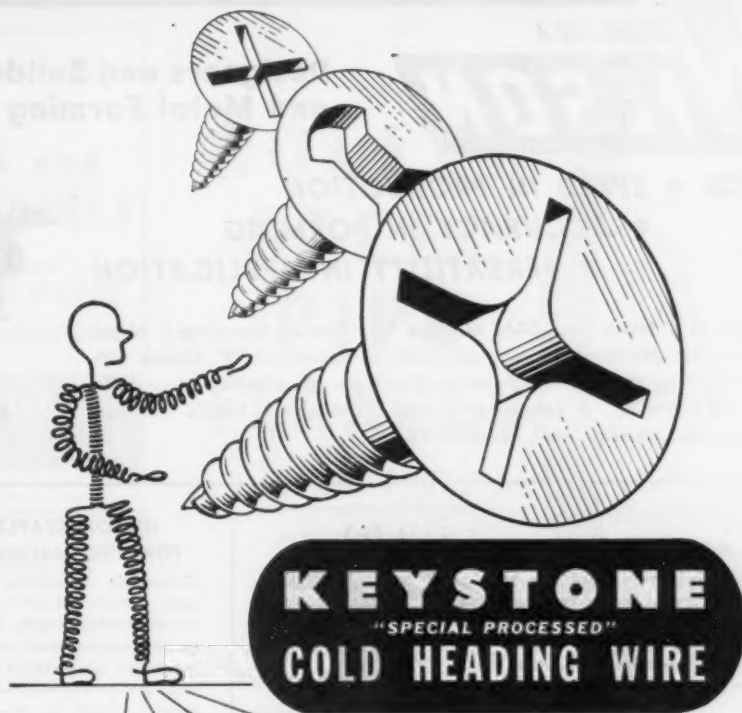


ters, and large hole sizes can be used without weakening the body. Widths range from 3/16 to 1 in. and diameters from 3 to 8 in. **Lovejoy Tool Co., Inc.** For more information, check No. 36 on the postcard on p. 35.

### Liquid Level Indicators

New level indicators with illuminated dials operate from any 3 to 15 lb pneumatic transmitter or direct from valve loading pressure. Reading of liquid levels can be transmitted any distance to the new Panellit level indicator receiver. Changes in levels from any source from any remote point, are visually reproduced on a graduated illuminated dial scale on the face of the instrument. Indicators are available in multiple units from 1 to 8, for flush panel mounting. **Panalarm Products, Inc.** For more information, check No. 37 on the postcard on p. 35.

*Resume Your Reading on Page 39*



**PROLONGS DIE LIFE**  
**FEWER REJECTIONS**  
**REDUCES INSPECTIONS**

For recessed heads, Keystone's new special-process wire delivers the desired upsetting and die forming qualities with such a high degree of uniformity that finished product rejections are practically eliminated . . . individual inspection of screws is no longer necessary . . . die and plug life are often more than doubled. This new wire effects considerable savings in the production of Phillips head, clutch head and cross recessed head screws.

Keystone is prepared to help solve any of your industrial wire problems. If special treatment is called for, Keystone's metallurgical research and testing facilities are available to supply the answers. We welcome your inquiry.

**KEYSTONE**  
**STEEL & WIRE CO.**  
PEORIA . . . ILLINOIS

*Special Analysis Wire, Setting  
New Standards of Performance*



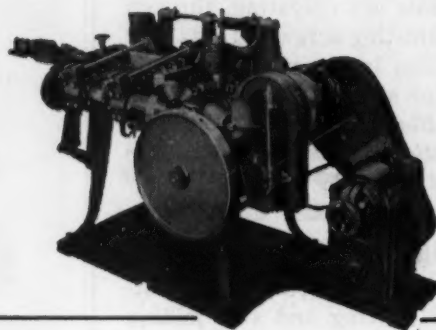
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# NILSON

## Designers and Builders of Automatic Wire and Metal Forming Machinery

- FOR • SPEED IN PRODUCTION
- ACCURACY IN FORMING
- VERSATILITY IN APPLICATION

Look at a Nilson Four Slide Machine for "Formed Stampings." Nilson Four Slide Machines are fully automatic in operation. "F" Models with built-in Press pierce, stamp or swage, then form—the complete piece made in one operation. A wide range of sizes is available to handle your particular requirements most economically.



### NILSON WIRE REELS

The illustration shows one of the many units we manufacture. These reels, made in stationary and tilting models from 75 to 500 lbs. capacity, can be used for either wire or coiled metal. Special types are available.



### NILSON STAPLE FORMING MACHINE

Completely automatic, they form, cement and cut to sticks of any desired length. Nilson Staple Forming Machines can be tooled for standard office and special size staples with square, chisel or divergent points.



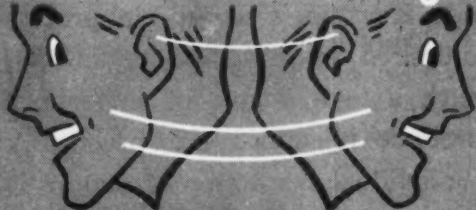
All inquiries concerning Nilson Products will be given prompt attention and full data will be forwarded upon request.

**The A. H. NILSON MACHINE CO.**  
1501 Railroad Ave. Bridgeport 5, Conn.

Automatic Wire and Metal Forming Machines — Staple Forming Machines — Chain Making Machinery — Foot and Power Presses — Wire Reels — Wire Straighteners

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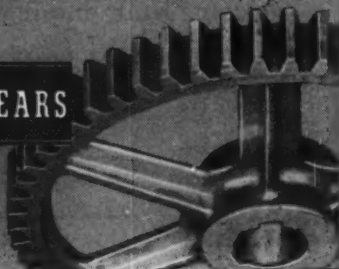


One reason why we're still doing business successfully after forty-five years of manufacturing gears of all types for a variety of industries is because we have continuously maintained the policy of making sure that each customer gets exactly the right gear for the job. Since we expect to continue in business for a great many years, it stands to reason that this policy will never be compromised. Therefore, you can turn your gear problems over to us—while you concentrate on something else.

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You just specify the hinge you want—Stanley does the rest, from first sketch to finished product.

Stanley gives you the advantage of expert designers and production engineers—complete research and tool-making facilities—the particular plating and finish best suited to your needs.

As the world's largest producer of hinges, Stanley is geared for efficient production to meet your requirements. Write for full information—not only on special hinges but drawings and stampings as well—now!

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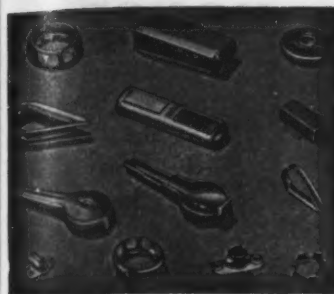
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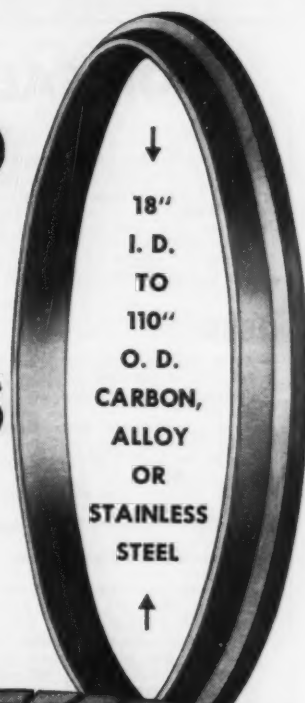
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Philadelphia's Oldest, The Country's Largest  
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*for all types  
of service*

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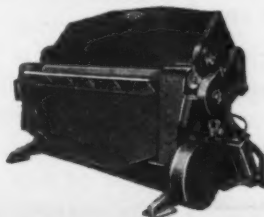
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**MANUFACTURERS OF  
DOUBLE FOLDER BRAKES  
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OF ALL KINDS  
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## FOR SALE

### NEW

- 1—16" Endless Belt—Royer Sand Mixer
- 5—1 pt. Brass Mouth Sprayers, Fig. 107A
- 2—Plow Beam Bushings 3 11/16" x 2 15/16" x 6" C-4-9
- 2—Ladies 17 1/2" dia. x 16" high
- 1—Ladle 16" dia. x 16" high
- 2—Ladies 11" dia. x 11" high
- 1—Set Cupola Bottom Doors for #5 Whiting Cupola

### USED

- 1—Royer C-2 Portable Sand Blender, capacity 500# Sand per min., includes 2 h.p. Century motor, 440 volt, 3 phase, 60 cycle and starting switch
- 1—Royer D Portable Sand Blender, capacity 800# Sand per min., includes 3 h.p. Century motor, 440 volt, 3 phase, 60 cycle and starting switch
- 1—500# Modern Insulated Ladle less tilting gear
- 3—20" Combo gyratory Riddles type V, 110 volt 60 cycle
- 1—Hanna Air Cylinder 8" dia., 4" stroke, w/control valve
- 1—Engelberg Steam Engine, 9" bore, 10" stroke, 300 rpm, Ser. 5671, Frame J, with Westinghouse AC generator, 62.5 K.V.A., 480 volts, 75 Amp, 3 phase, 60 cycle, 300 rpm, Ser. 2533F364, and Westinghouse Exciter, SK-DC, frame 133, 6.25 K.V.A., 125 volts, 50 amp, 300 rpm, Style 29E-860, Ser. 4792334, and three field rheostats
- 1—Fairbanks-Morse 2 cyl. Diesel Engine 75 h.p., 300 rpm, with same type generator and exciter as listed with the Engelberg engine above, starter tanks, air compressor, and 1 1/2 h.p. Fairbanks-Morse gasoline starting engine

**SEALED POWER CORPORATION**  
MUSKOGEE, MICHIGAN

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3 AUTOMATIC NAIL MACHINES, EXCELLENT WORKING CONDITION, CAPABLE OF USING 9 GAUGE TO 16 GAUGE NAIL WIRE:

- 1 NATIONAL MACHINE \$3600
- 2 RODERICK MACHINES \$2200 ea.

OR NEAREST OFFER

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## BENDING ROLLS

12' BETHLEHEM PYRAMID PLATE BENDING ROLL

- Capacity 12' x 1 1/4" plate—
- Top roll 18" diameter with counterbalance—
- Power elevation and drop end housing—
- Cast steel base and housing—
- Weight approx. 65,000#

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BAKING OVEN, "Gehrich", gas fired recirculating type I.D. 11" wide, 7" high, 19" long, Temp. range 350-400°F., All motors, controls and drawings included. New 1942. Inspection and demonstration invited. \$2500

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# THE CLEARING HOUSE

NEWS OF USED, REBUILT AND SURPLUS MACHINERY

**Detroit machinery trend ranges from pessimistic to optimistic**

**Pittsburgh shows cautious optimism as inquiries pick up after coal strike**

**Competition to used cranes seen from lower-priced new units**

## Detroit Machinery Dealers Report Mixed Buying Trends

Detroit — The used machinery trend in this city is badly mixed. Some machinery firms report distinct disappointment with present business conditions as compared with the optimistic trend that seemed to be developing at the start of the year. Other concerns are saying that present volume is holding up well and in a few instances even surpassing the same period of a year ago.

### Sheet Metal Presses Moving

Sheet metal presses are reported to be moving. Several types of tool room equipment including lathes, shapers, broaches, and punch presses are in fair-to-excellent demand according to the trade. The slowest item appears to be Keller machines that nevertheless continue to bring excellent prices.

Despite the fact that a large part of the equipment reaching the market today originates at auction sales, prices are holding up well. High class machines continue to bring good prices, while for the most part antiquated equipment is a drug on the market.

### Middle-Sized Firms Buying

Compared with the substantial volume of new equipment that is being bought for new engine and transmission tooling programs, the volume of used and rebuilt equipment moving today is small. Ordering appears to originate mostly with middle-sized firms. Many small shops are unable to afford the price of an extensive

plant modernization program. Large auto firms favor new equipment for practically all of their production tooling.

Reports that some brokers are operating on extremely thin margins continue to be heard, but in most cases local buying has been orderly.

The combined effects of the Chrysler strike and the prolonged struggle over coal are being seriously felt here although such factors are impossible to measure.

## Inquiries Rise After Strike; Dealers Cautiously Optimistic

Pittsburgh—There has been a noticeable pickup in inquiries for used and rebuilt machinery in the Pittsburgh district since the coal strike ended. In spite of this, it is hard to find many dealers who will be more than cautiously optimistic.

With industrial peace seemingly assured in the two biggest industries here, prospective buyers are emerging from their shells and shopping around. Dealers report that buyers are willing to pay prices asked providing the equipment is not older than 8 or 10 years, and providing it is just what they want. They also claim that the older equipment almost has to be given away.

### New Cranes Are Competition

Machine tool sales are off and overhead cranes are slow to move. The buyer is definitely in the driver's seat on these items. To make matters worse, quotations of new

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# THE CLEARING HOUSE EASTERN OFFERS FROM STOCK

## INTERNAL GRINDERS

No. 70 Head, belt  
No. 72A Head Plain, m.d.  
No. 72A Head Gageomatic, m.d.  
No. 72A Head Sisenatic, m.d.  
No. 72A Head Gageomatic, m.d.  
No. 72A Head Sisenatic, m.d.  
No. 72A Head Plain, m.d.  
No. 72A Head Plain, long bed type, m.d., latest  
No. 73 Head, m.d., brand new, latest  
No. 74 Head, m.d.  
No. 174 Head Gap, m.d., latest  
No. 649-16 Van Norman Automatic Oscillating Radius, m.d., latest  
Series 5—No. 5 Bryant, m.d., latest

## THREAD GRINDERS

No. 23 Excella Precision, m.d., latest  
No. 39A Excella Internal Thread, m.d., latest

## TOOL & CUTTER GRINDERS

No. 2 LeBlond Universal, m.d.  
No. 2 Norton Universal Hydraulic, m.d., latest  
No. 10 Brown & Sharpe, m.d., latest  
No. 13 Brown & Sharpe, m.d., latest  
Cincinnati Monoset, m.d.  
Sterling Tool & Cutter, m.d.  
Gleason Cutter, m.d.  
No. 2B Sellers Drill, m.d.  
No. 12M Grand Rapids Tap, m.d.  
No. 4T Sellers Tool, m.d., latest  
No. 6T Sellers Tool, m.d., latest  
No. 31 Oliver Drill Pointer, m.d.  
1/4 H.P. Grand Rapids Double End Drill Grinder

## MANUFACTURING LATHES

No. 3A Lodge & Shipley Duomatic, m.d., late type  
No. 4 LeBlond Boring Lathe, 37" bed, 13" hole  
No. 9, 13 LeBlond Multi-Cut, m.d.  
3/4"x36", 3/4"x36", 4x60", 8x84" LoSwing, m.d.  
8x132" LoSwing, m.d., latest  
9x12" Sundstrand, s.p.d.  
11x15" LeBlond Rapid Production, m.d.  
12x18" centers Monarch Model 5T, m.d.  
13"x24" LeBlond Rapid Production, Timken, latest  
13"x24" Coultter Automatic Threading, m.d.  
13"x26" LeBlond Rapid Production, Timken, latest  
13"x48" Coultter Automatic Threading, m.d.  
16"x6" LeBlond Rapid Production, m.d.  
16"x6" bed Lodge & Shipley Simplified Mfg., cone, motorized  
17"x6" LeBlond Automobile Mfg., cone

17"x6" LeBlond Automobile Mfg., cone  
20"x8" LeBlond Mfg., m.d.  
21"x8" LeBlond Turret Lathe, cone  
Niles-Bement-Pond Quartering Machine, m.d., new  
Schauer Type NA 2B Speed Lathe, m.d.

## ENGINE LATHES

10x20" centers Monarch EE Geared Head, m.d., latest  
10x24" Logan, cone, motorized  
12x30" centers American Geared Head, m.d., late  
13x30" centers Pratt & Whitney Model B, m.d., taper  
13x48" centers Pratt & Whitney Model B, m.d.  
14x30" Lodge & Shipley Selec. Head, m.d., latest  
14"x54" centers Lodge & Shipley, m.d., latest  
14"x6" bed Hendey Geared Head, m.d., taper  
14"x6" Lodge & Shipley Geared Head, m.d.  
14"x6" Pratt & Whitney, cone  
14"x6" LeBlond, cone  
14"x6" Sidney Geared Head, m.d.  
14"x6" Springfield Geared Head, m.d., taper  
14"x8" Prentice, m.d., taper  
14"x8" Pratt & Whitney, cone  
14"x102" centers LeBlond, m.d. in leg, latest  
15"x6" LeBlond Geared Head, m.d.  
16"x30" Bed-Prentice, m.d., latest  
16"x36" Pratt & Whitney Geared Head, m.d.  
16"x58" centers Pratt & Whitney, cone, motorized  
16"x6" Bradford, cone  
16"x6" Hendey Geared Head, m.d.  
16"x6" Hendey Yoke Head, taper  
16"x6" bed LeBlond, cone  
16"x6" Lodge & Shipley Selec. Head, m.d.  
16"x6" bed Monarch Geared Head, m.d.  
16"x8" bed Lodge & Shipley, m.d.  
16"x8" Monarch, m.d. in base, taper  
16"x8" Sebastian, cone  
16"x10" Hendey Yoke Head, taper  
16"x14" American Geared Head, m.d.  
16"x14" Greaves-Klusman, m.d. in leg, taper  
17"x8" LeBlond Geared Head, m.d.  
17"x8" LeBlond Geared Head, m.d., taper  
18"x48" centers Lodge & Shipley, m.d., taper  
18"x52" centers American Geared Head, m.d., taper  
18"x5" LeBlond Geared Head, m.d.  
18"x6" bed Lodge & Shipley, cone, motorized  
18"x6" Monarch Geared Head, m.d.  
18"x7" Hendey Geared Head, m.d., taper  
18"x8" Advance, cone  
18"x8" American Geared Head, m.d.  
18"x8" Champion, cone  
18"x8" Hendey Geared Head, m.d.

18"x8" Lodge & Shipley Selec. Head, m.d.  
18"x8" Lodge & Shipley, cone  
18"x8" Whitcomb-Blaisdell Geared Head  
18"x10" Bradford, cone, motorized  
18"x10" Cincinnati, cone  
18"x10" Lodge & Shipley Selec. Head, m.d.  
18"x8" bed LeBlond Geared Head, m.d., taper  
19"x10" LeBlond Geared Head, m.d.  
20"x48" centers Pratt & Whitney Model B, m.d. in base, taper  
20"x8" American Geared Head, m.d., taper  
20"x8" Cisco, cone  
20"x10" Boye & Emmes Geared Head, m.d.  
20"x10" bed (66" centers) Monarch Geared Head, m.d., taper  
20"x10" Sidney Geared Head, m.d.  
20"x11" Lehmann Geared Head, m.d., taper  
22"x70" centers Greaves-Klusman Geared Head, m.d., taper  
22"x8" Lodge & Shipley, cone  
23"x12" LeBlond Geared Head, m.d., taper  
23"x18" LeBlond Geared Head, m.d., taper  
24"x10" Hendey Geared Head, m.d.  
24"x10" American, cone  
24"x10" Greaves-Klusman Geared Head, m.d., taper  
24"x10" Lodge & Shipley, cone  
24"x12" Bridgeford Geared Head, m.d., taper  
24"x12" LeBlond, cone  
24"x20" Lodge & Shipley Selective Head, m.d., taper  
25"x10" LeBlond, cone  
26"x8" Bridgeford Geared Head, m.d.  
26"x12" Bridgeford Geared Head, m.d., taper  
30"x12" Niles-Bement-Pond, m.d., latest  
30"x13" Niles-Bement-Pond, m.d.  
30" raised to swing 42"x21" American Geared Head, m.d., taper, Timken  
32"x12" Lehmann Hydratrol Geared Head, m.d., taper, latest  
36"x36" Niles Heavy Duty, m.d., latest, 2 carriages

## MANUFACTURING TYPE MILLING MACHINES

No. 08 Cincinnati Model EA, m.d., latest  
No. 12 Brown & Sharpe, m.d.  
No. 1-12 Cincinnati, m.d., latest  
No. 1-18 Cincinnati, m.d., latest  
No. 2-18 Cincinnati, m.d., with rise and fall, latest  
No. 2-24 Cincinnati, m.d., latest  
No. 4-48 Cincinnati Plain Hydromatic, m.d., latest  
No. 4-48 Cincinnati Duplex Hydromatic, m.d., latest  
No. 34-36 Cincinnati Duplex Hydromatic, m.d., with tracer control, latest

We carry an average stock of 2,000 machines in our 11 acre plant at Cincinnati. Visitors welcome at all times.

## THE EASTERN MACHINERY COMPANY

1002 Tennessee Avenue, Cincinnati 29, Ohio • MEloose 1241 • Cable Address EMCO

5" Sellers FLOOR TYPE Horizontal Boring Mill  
#30 "Tri-Way" Universal Horizontal Boring Mill, 3"  
#33 Lucas 4 1/2" bar Horizontal Boring Mill  
#61-A Fellows Gear Shaper  
6'-17" Carifton Radial Drill  
48" x 48" x 17" Powell Planer, 4 heads

### HAZARD BROWNELL MACHINE TOOLS, INC.

350 Waterman St., Providence 6, R. I.

## LIKE NEW

24" x 192" cc NORTON TYPE D Cylindrical Grinder, new in 1943, used less than 100 hours. Complete with all necessary motors and controls. Can be inspected under power. Replacement cost over \$60,000.00.

### O'CONNELL MACHINERY CO.

1821 Niagara St. Buffalo 7, N. Y.  
Phone BEdford 8500

## BORING MILL

Ohio horizontal planer type 5" spindle. Table 42" x 126". Table feed 96". Vertical travel 48".

### A. L. BECHTEL & SON

1310 E. 65th Street Cleveland 3, Ohio



## NEARLY NEW MACHINES

CROSS #50 Universal Gear Chamfering Machine — Maximum gear diameter — 18". Maximum gear face—18". Maximum gear pitch — 1 1/2 or finer. Complete with motor and electrical starting equipment. Latest type and Design.

Write, wire or phone  
for details

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## MOREY

### MACHINERY CO., INC.

BROOME & LAFAYETTE STS., NEW YORK 13, N. Y.  
TEL.: CANAL 6-5360 CABLE ADD.: WOODWORK, N. Y.

1—36" x 36" x 16" Ingersoll Adjustable Rail Milling Machine, 1 rail, 2 side hds., AC. New 1944. Condition like new.

### BENNETT MACHINERY CO.

30 Church St., New York 7, N. Y.

## SHEET METAL MACHINERY

Brakes, Apron D&K M. D. 10" 1/2" Cap.  
Brakes, Box & Pan, D&K, 4" 3/16" Cap.  
Roller Leveler, 30" Wide 10Ga. M. D.  
Rolls, H&J Pyramid M. D. 10" 1/2" Cap.  
Shear, Liberty 14Ga. 90" Throat M. D.  
Shear, Pexto Gap 42" 10Ga. Cap. #342  
Shear, Rotary Quikwork 1/2" Cap. 48" Thr.  
MILTON EQUIPMENT COMPANY  
N.E. Cor. 4th & Race Sts. Phila. 6, Pa.



# THE CLEARING HOUSE

## AIR COMPRESSOR

1000 Cu. Ft. Worthington "Feather Valve," 18" x 11" x 14" two stage with 185 HP synchronous motor on shaft.

## AUTOMATIC

4 3/8" Conomatic 4 spindle, serial No. 2191K with, reel, chip conveyor, extra equipment.

## BORING MILLS

4 1/2 bar Lucas No. 33. Table 46" x 64", Max. height 36", Max. to outboard support 11'.

100" Niles Bement Pond. Extra heavy type. 2 swivel heads, power rapid traverse, 35 HP direct current motor.

## BROACH

15 ton 36" stroke American vertical duplex surface with tilting type workholder.

## DRILL

42 spindle, No. B16 Natco multiple with 18" x 48" drilling area and two box tables.

## GEAR HOBBER

Type T Barber Colman. Designed for either straight or taper splines, helical or spur gears. Also type A and Nos. 3 & 12 Barber Colmans.

## GRINDERS

6" x 18", No. 10 Brown & Sharpe "Electric Hydraulic" Three with and two without spindle oscillation. New 1940 and 1941.

10" x 36" Norton type C hydraulic with hydraulic quick in-feed. Serial No. C16458, new in 1942.

10" x 72" Norton type C hydraulic made at factory to swing 14". Serial No. 21750, new in 1944.

23" x 36" Norton type C with mechanical table traverse, hydraulic quick in-feed. Serial No. C18281, new 1943.

## LATHE TURRET

No. 2FU Foster Fastermatic Serial No. 2FU529, new in 1944. Quite a little tooling.

## MILLERS

Cincinnati Hydromatic Sizes: 3-24, 34-36, 4-36, 4-48, 5-48, 56-72 and 56-90.

## PRESSES

1000 ton, No. 666 Toledo knuckle joint Coining. 2 1/2" stroke, 18" shut height, bed 37" F to B x 31" R to L.

350 ton Clearing Crankless, model F1350-42, serial No. 45-11155P, new 1945. 20" stroke, 28" shut height, 36" x 42" bed.

600 ton Hamilton No. 2316 1/2 eccentric shaft forging. Stroke 4"; shut height 16", bed 28" F to B x 23 3/4" R to L.

No. 506 Bliss on inclined legs with double roll feed and scrap cutter. About 126 tons. 3" stroke, 11 1/2" shut height.

1000 ton Baldwin Southwark "Hy-Speed" hydraulic. 20" stroke, 56" daylight, bed 42" F to B x 54" R to L.

## UPSETTERS

2" National. Serial No. 13213. Has suspended slides with long overarm guide. Has 15 HP motor.

4" Ajax. Serial No. 3156. Has twin drive gears, suspended slides, self contained backshaft, 30 HP motor.

**MILES MACHINERY CO.**  
SAGINAW, MICH.

Continued from Page 114

crane manufacturers are generally lower than they were. This gives the prospect something to think about in weighing the advantages of buying new versus old equipment.

Inquiries are still as plentiful in the heavy equipment field. The leading dealer here reports quite a few prospects for sheet mills, cold mills, and miscellaneous steel mill equipment. This dealer has found business good for the last six months.

Demand for shears, bending rolls, and the larger size presses is good, with the larger companies doing most of the buying.

## Unusual Item Located

Inquiries for the most part are following the same old pattern, but one dealer was more than a little surprised recently when a buyer asked him to find a steel washer. He hadn't had a call for a steel washer in years. He set out to find one, and did. The search ended in Cincinnati, and the dealer felt that the machine must be the only one left in the country. Another dealer, however, said he understood there was a washer in a plant in Buffalo, and offered to get it dirt cheap.

The steel washer, designed for cleaning castings, consists of a series of tanks through which the part to be cleaned is carried on a conveyor. As the casting moves through the tanks, it is cleaned by high-pressure water and steel shot, rinsed and dried. Large parts and basketed small parts can be handled.

## O'Brien Moves Sales Office

Philadelphia—The O'Brien Machinery Co. will move its sales offices on May 1st to the company's new plant at 1545 North Delaware Ave. The plant, used for rebuilding, manufacturing and warehousing, contains 100,000 sq ft of floor space. It is considered to be one of the largest machinery warehouses in the East. Until that time the company's offices will remain at 113 North Third St., Philadelphia 6.

Resume Your Reading on Page 115

Upsetting & Forg. Machs., National High Duty, guided overarm heading slide, suspended slides, 1 1/2", 2", 3", 4", 5"

Ajax & Acme Upsetting & Forg. Machs., not suspended slides, 3/4", 1", 1 1/2", 2 1/2", 3"

W. W. Bulldozers, #22, #4, #24, #5, #8

Drop Hammers, 800# to 2500#

Nazel Air Forg. Hammer, #6B, Cap. 7" sq.

Bradley Hammers, Cushioned Helve, Upright & Compact

Trimming Presses, #59 1/2 Toledo, Tie Rod, 440-tons; other trimmers 55 to 200-ton

Bar Shears, Open & Guillotine, 3/4" to 7" Rd. Minster 88-ton O.B.I. Press

Minster 88-ton S.S. Press, 16" stroke

Solid Back Presses, 20 to 100-ton

#94-A Toledo S.S. Double Crank, Tie Rod Press; bolster 40x36"

Bliss Knuckle Joint Press, 250-ton

Thomas Beam Punch, Ram 32x38"; table 27x46", 300-ton

Cleveland EF Sgl. End Punch, 48" throat, 1 1/4" thru 1"

Single & Double End Punches, various throat depths and caps.

L. & A. Multiple Punch, 8", 150-ton

L. & A. Multiple Punch, 10", 350-ton

Ryerson Serpentine Throatless Shear, 1/2"

#416-C Niagara Circle & Slitting Shear, 1/4"

Flanging Machine, McCabe, cap. 3/4"

Bertsch Straightening Roll, 1"x68"

Ryerson Friction Saws, #0, #1 & #3

Landis Threading Machine, 1", 2-Sp. lead screw, Lanco Hds., M.D., single up to 4"

**BOLT, NUT AND RIVET MACHINERY, COLD HEADERS, COLD BOLT TRIMMERS, THREAD ROLLERS, SLOTTERS, HOT HEADERS AND TRIMMERS, COLD AND HOT PUNCH NUT MACHINES, POINTERS, THREADERS, WOOD SCREW EQUIPMENT**

Diamond Face Grinder, Segment Wheel 36"

Table 84"x24", Hydraulic operated

Landis Motor Driven Pipe Threader, 8"

American Wheelabrator, 20x27

Southwark 400-ton Wheel Press

**DONAHUE STEEL PRODUCTS CO.**

1913 W. 74th Street, Chicago 36, Ill.

## 72 x 1 1/4" PLATE SHEAR

60" between housings, 10" gap,

Motor Drive, Very Good Condition

## G&L 5" BAR BORING MACHINE

Table 60x84, Timken bearing, M.D.

## LANG MACHINERY COMPANY

28th St. & A.V.N.R.

Pittsburgh 22, Pa.

## FOR SALE

One Morehouse Proving Ring, No. 88. Capacity 100,000 lbs. compression. For calibration of tensile and compression testing machines. Bureau of Standards Certificate.

Price \$500.00

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